



Metering Standard

ENMAX POWER CORPORATION (EPC)

1 Revisions

1.1 Summary of Revisions

Rev #	Date	Description	Originator
0	20160901	Issued for Implementation	N. Duerksen
1	20171108	Revision	C. Chan
2	20190415	Revision	C. Chan
3	20220426	Revision	C. Chan
4	20251117	Major Revision	C. Chan

1.2 Summary of Changes

Rev. #	Section	Change
2	Glossary	Updates to definitions for clarity
2	1.4 – Meter Location Standard	Clarified requirement for 98% nameplate efficiency of transformers installed line side of the utility meter
2	1.9 – DG& MGs	Corrected Email Link, group updated to Project Intake
2	1.10.3	Added that Minimum height is CEC requirement
2	1.12 Meter Service Area Definition	Updated bulk metering verbiage for clarity
2	2.2.3 – Instrument Transformer Metering	Clarified type of conduit required
2	2.2.10 – Current Transformer Enclosures Table	Added note 2 for clarity
2	2.2.11 – Current Transformer Enclosures	Max Height allowed to be 1.7m
2	3.3.1 – Single Phase/Multiple Residential Services	Maximum number of services is now 4
2	7.2 – Interval New Site	Correction for Maximum Conduit Height
2	9 – Connectivity	Updated requirement – Customer must ensure city approved, up to date addressing plan on site
2	10 – Appendices	Figures 1, 3b, 8, 13, 17 Updated for Clarity
3	1.9 – Distributed Generation	Updated Contact
3	Definitions/1.11	Note that LBs/access to unmetered conduit not permitted
3	2.13	LBs/access to unmetered conduit not permitted for self contained metering sites
4	All sections updated	Restructured and clarification on requirements added. Please see website for summary of changes.

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3 Introduction

3.1 Preface

The information in this standard will assist you in completing your electrical project. Please review all the information contained within this document and plan work accordingly. Prior to requesting a new electrical service, ensure that all applicable requirements have been met.

3.2 Contact Information

For more information about ENMAX Metering standards, please email RMPlanner@enmax.com. For general information about ENMAX, visit ENMAX's website at www.enmax.com.

3.3 Disclaimer

The Customer is responsible for complying with all requirements outlined in the ENMAX Metering Standard, as well as all relevant regulations, codes, and guidelines. ENMAX has the right, in its sole discretion, to decide how a site will be metered. Please note that the contents of this document are subject to change at any time. Therefore, it is the Customer's responsibility to ensure they are referencing the most current version.

4 Definitions

The definitions are here to provide clarity and context with respect to the usage of these terms in the Metering Standard.

AHJ	Authority Having Jurisdiction. Ensures compliance with the construction and safety principles of the Canadian Electrical Code (CEC).
AWG	American Wire Gauge. Wire sizing standard used to measure the diameter and cross-sectional area of electrical wires, where a smaller gauge number indicates a thicker wire.
Bulk Metering	Where a single utility revenue meter is used to measure the consumption of more than one clearly defined area.
CEC	Canadian Electrical Code, Part 1 and Amendments
Clearly Defined Area	A clearly defined area is constituted of a contained unit, for example: a) A dwelling unit within an apartment building, duplex, or fourplex, or b) A bay within a commercial complex.
CSA	Canadian Standards Association.
Cold Sequence Metering	An arrangement of electrical equipment such that the power supply is connected directly to a disconnecting device located immediately on the line side of the ENMAX meter, serving as the designated disconnecting device for that meter and all other load-side circuits.
Commercial Service	An electrical service designed primarily for purposes other than residential or dwelling unit use. Examples of commercial services may include electric vehicle charging stations, public lighting, saw services, elevators, HVAC, fire pumps, etc.
Connectivity Test	ENMAX must verify that all meter sockets and their corresponding address labels are properly wired to supply power to the associated unit panels, with the addresses accurately labeled on the panels. A connectivity test is required on all sites with more than one unit.
CT	Current Transformer (also referred to as an Instrument Transformer).
Demand	The average value of power over a specified interval of time. The most common unit of measures are kilowatt (kW) and kilovolt-amperes (kVA) demand.
DER	Distributed Energy Resource, a source of electrical power generation or electrical power storage. See also DG and MG.
DG	Distributed Generation refers to smaller-scale electricity generation sources that utilize local renewable or non-renewable energy to generate electricity. Projects that do not meet the Alberta Utilities Commission (AUC) requirements for classification as a micro-generator are categorized as Distributed Generation
Disconnecting Device	A visible and lockable switching device capable of safely deenergizing an electrical circuit from its power source.
Double Metering	Where more than one utility revenue meter is used to measure the consumption of only one clearly defined area. Also known as submetering.
Dwelling Unit	A dwelling unit operates as a housekeeping unit that is used or intended to be used by one or more persons and contains cooking, eating, living, sleeping, and sanitary facilities.
EMT	Electrical Metal Tubing.

Fault	A fault occurs when current deviates from its intended path, often due to insulation failure or equipment damage. Common types include line-to-line and line-to-ground faults, which can disrupt operations and pose safety risks
Finished Grade	The final level of soil or hard surface (concrete, asphalt) as prepared for the finished site landscaping. Does not include decorative ground coverings, decks, balconies, or other non permanent surfaces.
Unfinished Grade	The level of soil or hard surface (concrete, asphalt) at a present point in time. Does not include decorative ground coverings, decks, balconies, or other non permanent surfaces.
Ground	The electrical connection to earth obtained by a grounding electrode, not to be used as neutral connection.
Hot Sequence Metering	An arrangement of electrical equipment such that the power supply is connected directly to the ENMAX meter, with no disconnecting device located immediately upstream of the meter.
HRC	High Rupturing Capacity, commonly associated with fuses used in overcurrent protection systems.
Instrument Transformer	Devices (commonly, Voltage Transformers and Current Transformers) used in metering systems to accurately scale high voltages or currents to lower, standardized levels for measurement and protection.
Interval Metering	A method of recording energy consumption at specific, continuous time intervals, such as 1 minute, 5 minutes, 15 minutes, or 1 hour.
LB	L-Bend. An "L" shaped fitting used in conduit systems, designed to change the direction of the conduit run. It includes a removable cover for wire access.
Line Side	The electrical equipment located towards the Utility supply point in reference to the utility meter.
Load Side	The electrical equipment located towards the Customers equipment in reference to the utility meter. Referring to the system components after the meter that deliver electricity to the end-use devices.
Meter Socket	A device used to mount and secure an electric meter, providing a connection point for the electrical supply and enabling the installation/removal of the meter
Meter Service Area	A clearly defined area identified by a single unique address, within which electricity consumption is measured and recorded by a single utility meter.
Meter Socket and Test Switch Enclosure	A metal housing that combines a meter socket with a test switch, designed for use with current and/or voltage transformers
MG	Micro-Generator/Micro-Generation. A small-scale generation system using renewable or alternative energy sources, with a capacity up to 5 MW (or the Customer's service rating, whichever is lesser). It is designed to meet part or all of the Customer's energy needs at their owned or leased site, or adjacent property, and may include energy storage for managing production and consumption
Network	The distribution system is fed by multiple primary circuits whose secondaries are tied together to form a power grid or "network".
Neutral	The conductor from the transformer Star point that carries the imbalanced load current and provides a reference point for metering potentials.
Pad-mount Transformer	An ENMAX transformer that sits on a concrete base at ground level.
Peak Demand	The maximum rate at which energy is delivered or consumed at a specific moment in time, representing the highest level of energy usage within a given period.
Pedestal	An ENMAX utility box containing secondary wires and connection points that sits on a concrete base at ground level.

Permanent Structure	A building or structure that is intended to remain in place for an indefinite period. Examples include power poles, residential homes, commercial buildings, and other structures that are securely attached to the ground and meet local building codes.
Pole-mount Transformer	An elevated transformer that is mounted to an ENMAX pole.
PT	Potential Transformer (also referred to as Voltage Transformer and Instrument Transformer).
Polyphase Service	An electrical service comprised of 3 phases including line to line and line to neutral commonly used for 120/208-volt multi-tenant residential and commercial applications.
Primary Conductor	A high voltage wire or group of wires capable of delivering electricity at greater than 750 volts.
Primary Metered Service	A metered site with service voltage over 750 Volts.
Residential Service	An electrical service provided primarily for the use of a residential unit or dwelling, where the electricity is intended exclusively for residential purposes and non-commercial use, such as lighting, heating, and powering appliances.
Saw Service	An electrical service required for construction power and is considered a temporary commercial service.
Secondary Conductor	A low voltage wire or group of wires capable of delivering electricity at 750 volts or less.
Secondary Metered Service	A metered site with service voltage less than 750 Volts.
Self-contained Meter	An electrical meter that is directly connected to the service conductors without the need for instrument transformers. It is typically used for residential or small commercial installations where the power consumption is within the meter's rated capacity.
Service Entrance Equipment	The customer-owned electrical equipment located at (or immediately downstream of) the point where the utility service connects to the customer's electrical system.
Single Phase Service	An electrical service comprised of a 120/240-volt system. Commonly used for residential and small commercial applications.
SLD	Single Line Diagram
Sub-Metering	Sub-metering is defined as the installation and use of additional meters downstream of the ENMAX utility meter to measure and allocate consumption among individual units, tenants, or customers for billing purposes.
Supply Point	The point of connection where the utility's conductors are connected to the Customer's conductors or electrical supply entry equipment.
Three Phase	A service with three phase conductors, carrying an alternating current (AC), and a neutral. Commonly used in industrial, commercial, and large-scale residential applications.
Tub	An ENMAX utility box containing secondary wires and connection points located below ground level.
Weatherhead	A watertight device used in overhead electrical connections to protect and seal the entry point of power lines into a building, preventing water from entering the system.

5 General Information for All Services

5.1 General

This section describes general requirements applicable to all electrical service types within the ENMAX distribution territory.

5.2 Right to Access Meter System Equipment

In accordance with **ENMAX Power Corporation Distribution Tariff Customer Terms and Conditions**, ENMAX employees, or authorized representatives, must have reasonable and unrestricted access to all ENMAX meter system equipment for the purpose of reading, testing, replacement, or maintenance purposes. Where ready access to the meter system equipment is restricted due to locked doors, ENMAX may request a key, which the Customer is required to provide.

5.3 Right to Refuse to Energize

An electrical inspection and approval to energize from the Authority Having Jurisdiction (AHJ) must be obtained before the installation of the ENMAX meter. ENMAX reserves the right to refuse energizing any service or meter installation within its service territory at its discretion. Possible reasons for refusal include unsafe site conditions, noncompliance with the Canadian Electrical Code (CEC), or this Metering Standard. ENMAX also reserves the right to disconnect a site based on property conditions per **ENMAX Power Corporation (“EPC”) Distribution Tariff**.

5.4 Demarcation

5.4.1 Overhead Services

The point of demarcation shall be at the Customer weatherhead where the overhead wires originating from the utility supply point connect to the Customer wires protruding from the Customer weatherhead.

5.4.2 Underground Services

The point of demarcation shall be at the location where the underground wires enter the Customer’s property or at the point where the underground wires originating from the utility supply point exit the Utility Right-of-Way (URW), whichever is further downstream.

5.5 Meter Service Area

One ENMAX meter shall not measure the energy consumption of more than one (1) clearly defined area. Conversely, more than one (1) ENMAX meter may not measure the consumption of one single clearly defined area.

5.5.1 Requirements

- a) Each clearly defined area must have a unique municipal address,
- b) Each clearly defined area must have a unique Site ID,
- c) All units in new multiunit buildings (residential or commercial) will be metered and billed on an individual basis.

5.5.2 Bulk Metering

Bulk metering, double metering or sub-metering is prohibited.

5.5.3 Single Meter in Multi-Tenant Building Conditions

A single meter at a multi-tenant building may be permissible at ENMAX's sole discretion if **all** the following conditions are satisfied:

- a) A communal eating area exists,
- b) Owner is not charging occupants based on individual electricity consumption,
- c) Each unit does not have a kitchen or appliances typical for independent living,
- d) Unit must not have individual street access,
- e) Unit must not be sold individually.

5.6 Metered & Unmetered Conductors/Conduit

All service entrances must be designed and constructed so that metered and unmetered conductors are not run in the same conduit or raceway.

Any conduits with removable covers such as LB's are not acceptable on the line side of the meter.

5.7 Number of Secondary Conductors

5.7.1 General

The following requirements apply to all service types:

- a) Customers must provide a neutral for all service types.
- b) Customers must provide at a minimum 2 current carrying wires for all service types.
- c) Wire sizes and types must comply with the CEC.

5.7.2 Customer Delta Loads

For all utility 3 phase 4 wire services feeding a Customer's Delta load configuration, the incoming service must still be metered as a 3 Phase 4 Wire Wye service.

- a) A non-current carrying neutral conductor (sized as per CEC), must be pulled into the main disconnect from the ENMAX Transformer and terminated to ground.
- b) A neutral conductor (minimum #6 AWG identified as white) from the main disconnect must be brought into the ENMAX instrument transformer enclosure and/or meter socket for metering purposes and terminated using an Isolated Neutral Bar / Lug.

5.8 Temporary Meter Removal

The Customer must contact ENMAX to request the removal of a meter from metered service. Meters shall only be disconnected or reinstalled by qualified ENMAX authorized representatives. To request a temporary meter removal, www.enmax.com complete the online [form](#).

5.9 Electrical Modifications to Existing Services

All Customers planning any modifications or additions to their electrical system must email ENMAX at RMPlanner@enmax.com. These changes may include, but are not limited to:

- Increased electrical load
- Backup power supplies
- On-site power production sources
- Transfer switches

Contacting ENMAX early in the planning process helps ensure that the Customer's proposed modifications will not impact ENMAX infrastructure or the safe delivery of electricity to the Customer's site.

Please note that Customers may be responsible for costs associated with any changes required to ENMAX equipment due to service modifications. Additionally, Customers requesting approval may be required to upgrade their existing electrical equipment to comply with the current enforced requirements of the CEC or ENMAX Metering Standards. It is the Customer's responsibility to complete any required upgrades.

A meter socket whose height above finished grade becomes greater or less than the specified limits, or a meter socket that is otherwise rendered inaccessible due to alterations to the building or finished grade level, must be brought into the limits as specified in this document within 30 days after receipt of notification to move the meter socket.

6 Distributed Energy Resources (DER)

6.1 DG and MG Applications

Customers intending to install on-site electric power production sources must obtain approval from ENMAX prior to installing and energization of such equipment.

For detailed information on DER Interconnection Requirements and the application process, visit the DER section of the ENMAX website or email DERConnect@enmax.com for assistance.

6.2 Recognized Points of Isolation

ENMAX meter system equipment shall have a disconnecting device to isolate it from all sources of supply. ENMAX does not recognize any type of Transfer Switch as a suitable means of disconnect. This includes any device designed to be installed in the meter socket for the utility meter.

For Commercial sites only, disconnecting devices must be within line of sight of the metering equipment and have the means to be locked in the Open/Off position.

6.3 Warning Notice and Diagrams

Sites with on-site electrical power production sources shall install warning notices of an interconnected system at both the meter socket and all relevant disconnecting device locations.

A permanent, legible, and accurate single line diagram of the interconnected system shall be installed in a conspicuous place at the supply authority disconnecting means. Power production sources and their respective disconnects must be clearly identified on the single line diagram.

7 Service Types

7.1 Temporary Construction Service

Electrical services required for construction power are considered as temporary commercial services. All temporary construction service (i.e. saw Service) entry electrical equipment must be cold sequence and utilize an HRC fused disconnect as the main disconnection device.

To assist the Customer in preparing their site for energization refer to Additional Information / Checklists in the [Pre-Energization Readiness Guidelines](#) section of this document.

7.2 Overhead Secondary Service

7.2.1 General Information

An overhead service consists of one or more secondary service conductors traveling in free air, from an overhead ENMAX point of supply to a Customer-owned weatherhead and attachment point. Refer to [Drawing 504-0000-013: Typical Residential Overhead Service](#).

To assist the Customer in preparing their site for energization refer to Additional Information / Checklists in the [Pre-Energization Readiness Guidelines](#) section of this document.

7.2.2 Weatherhead/Attachment Point Height

The Customer's weatherhead, or equivalent, must be located at a height no greater than 5.5m (18 ft) above finished grade. The minimum weatherhead height is dictated by the CEC.

7.2.3 Weatherhead/Attachment Point Position

The weatherhead and attachment point must meet the following requirements:

- a) Located on the permanent structure closest to the utility's overhead supply point.
- b) Located on the building its servicing or on a common building.
- c) Where the property line shares a border with a public roadway (street or alley) that carries the overhead utility supply, then:
 - a. If the weatherhead and attachment point are located within 3m (9.84ft) of the property line, then they may be positioned on the wall facing the utility supply line or any of the two walls of the structure oriented perpendicular to the utility supply line.
 - b. If the weatherhead and attachment point are located greater than 3m (9.84ft) of the property line, then they must be positioned on the wall that is facing the utility overhead supply line.

Both the weatherhead and attachment point are the Customer's responsibility and ownership. Refer to the following drawings for various scenarios:

- [Drawing 504-0000-015: Weatherhead/Attachment Point Scenario 1: Single Building with a Garage;](#)
- [Drawing 504-0000-016: Weatherhead/Attachment Point Scenario 2: Two Buildings with No Common Garage / Permanent Structure;](#) and
- [Drawing 504-0000-017: Weatherhead/Attachment Point Scenario 3: Single Buildings without a Garage.](#)

Customer Connection points must be designed and installed such that overhead conductors do not cross over adjacent private properties or structures not associated with the service address.

7.2.4 Ladder Access Requirements

ENMAX personnel will utilize a step ladder to connect utility wires to the Customer's overhead point of connection. The Customer's weatherhead and attachment point must be located to meet the following conditions. Refer to [Drawing 504-0000-013 Typical Residential Overhead Service](#)

- a) The location must be accessible using a step ladder, as rooftop work is not permitted.
- b) The ladder will be positioned so that the weatherhead and attachment point are directly above and horizontally centered between the ladder rungs.
- c) The ladder will only be positioned within the property lines of the Customer's site. ENMAX personnel will not position the ladder where any part of the ladder extends outside the Customer's property.
- d) The grade must be flat beneath the ladder and where the ladder rungs contact the grade.
- e) The location must allow for safe ladder use. A ladder rise to run ratio of 4:1 must be maintained for proper ladder setup. [Drawing 504-0000-014 Safe Ladder Use](#)
 - i) The vertical measurement shall be taken from the contact point where the uppermost ladder rungs rest against the structure to the grade elevation where the feet of the ladder contact the grade, at the time of ladder setup.
 - ii) The horizontal measurement shall be taken from directly beneath the contact point where the uppermost ladder rungs rest against the structure to where the feet of the ladder contact the grade, at the time of ladder setup.

7.2.5 Customer-owned Pole General Information

Customers may request an overhead service connection to a Customer-owned pole as the first point of connection.

- a) The pole must be located as close as possible to the overhead utility supply point.
- b) The pole must be located entirely within the Customer's property.
- c) a) The appropriate meter system equipment (cold sequence or hot sequence arrangement) must be installed on the pole as required by ENMAX.
- d) The pole, pole installation, and construction of the electrical equipment on the pole must comply with the CEC.
- e) ENMAX reserves the right to refuse connection if, in its sole discretion, the pole does not meet acceptable standards.

7.2.6 Customer-owned Pole for Residential Use

The appropriate meter system equipment can be installed on the pole as required by ENMAX and may utilize a hot sequence meter system arrangement, unless otherwise required by CEC.

7.2.7 Customer-owned Pole for Commercial Use

The appropriate meter system equipment can be installed on the pole as required by ENMAX and must utilize a cold sequence meter system arrangement.

7.2.8 Overhead Service Wire Length Restrictions

ENMAX will not connect to a Customer's overhead connection point if the resulting length of overhead wire exceeds maximum lengths. See table below.

7.2.9 Table 5 Maximum Overhead Service Wire Span Lengths

Customer Service Load in Amps	Maximum Overhead Span Length
200 amps or less	30m
Greater than 200 amps	15m

7.3 Underground Secondary Service

7.3.1 General Information

An underground service consists of one or more secondary service conductors traveling underground from an ENMAX supply point to a Customer-owned connection point. Typical ENMAX underground supply points include pad-mount transformers, vaults, tubs, or pedestals.

To assist the Customer in preparing their site for energization refer to Additional Information / Checklists in the [Pre-Energization Readiness Guidelines](#) section of this document.

7.3.2 Conductor Installation

7.3.2.1 SUPPLY OF CONDUCTOR

The Customer is responsible for supplying, installing, and terminating the service cables up to the line side of the Customer-owned connection point device.

7.3.2.2 MATCH NUMBER OF SECONDARY CONDUCTORS TO SUPPLY SERVICE

All multi-meter sites must provide the same number of conductors to match the secondary service provided by the ENMAX supply point device. For example, if the ENMAX transformer supplies 3-phase, 4-wire service, the number of wires the Customer provides must be 4 (3 current carrying conductors and 1 neutral conductor). Additionally, the Customer's main disconnecting device must be designed to accommodate and terminate all wires to match the ENMAX supply.

7.3.2.3 CONDUCTOR SIZE LIMITATION

For more information on conductor size limitations, contact Project Intake at getconnected@enmax.com.

7.3.2.4 CONDUCTOR TERMINATION IN ENMAX SUPPLY POINT DEVICES

ENMAX will complete the final connection in all ENMAX supply point devices.

7.3.2.5 CONDUCTOR TERMINATION IN CUSTOMER CONNECTION POINT DEVICES

The Customer is responsible for completing the final connection in all Customer connection point devices.

7.3.2.6 OVERHEAD TO UNDERGROUND CONVERSION

Customers may request an underground service in an area where the existing utility service is overhead. To request an overhead to underground conversion, please contact getconnected@enmax.com.

7.4 Network Secondary Service

7.4.1 General Information

A network secondary service is located within the ENMAX network distribution area. To learn more about the ENMAX Network system, including the boundaries of the network area, go to enmax.com and search [Calgary Downtown Core Network](#).

7.4.2 All Services in the Network to be HRC and Cold Sequence

All electrical service equipment located in the Network must be:

- a) Cold sequence; and
- b) Utilize a High Rupturing Capacity (HRC) rated overcurrent disconnection device.

7.5 Unmetered Qualifications

Unmetered secondary services are available only to the City of Calgary, other utilities, and telecommunication companies, and must meet the following qualifications:

- a) In the sole opinion of ENMAX, qualifies as an unmetered service,
- b) The load is not greater than 30 amps, and less than 600 volts, and
- c) The load is consistent and predictable.

7.6 Utility Metering

Utility meter systems are a key part of ensuring that Customers' energy consumption is measured accurately. Each electrical service type has unique meter system requirements; please refer to the relevant section below for details.

7.6.1 General Conditions

7.6.1.1 GENERAL EQUIPMENT PROVISION INFORMATION

The Customer is responsible for the following:

- a) Supply and install a meter socket, as per [Table 1: Meter Sockets for Service Types](#)
 - i. The meter socket must be a CSA- and ULC-approved low-voltage standard enclosure.
 - ii. Ringless meter sockets and those equipped with current bypass switches (automatic circuit closures) are not permitted for metering at any installation serviced by ENMAX.
- b) Supply and install conduit, wire, and all necessary service entrance equipment.
- c) When it is necessary to route the conduit through switchgear compartments other than those reserved for ENMAX use, a metal conduit, or suitable metal raceway, shall be installed through each compartment for the exclusive use of ENMAX.
- d) Supply and install wiring for the meter socket.

ENMAX will supply and install the meter(s).

7.6.1.2 ADDRESS MARKING

To ensure proper billing integrity and to assist our crews in locating the correct site, Customers are responsible for the following:

- a) The meter socket must be clearly and permanent labelled with the site address.
- b) The main panel must be clearly and permanently labelled with the site address.
- c) The address of the site must be marked and visible from the front of the property.

7.6.1.3 ENMAX CONNECTIVITY TESTING

ENMAX will verify that each meter socket is correctly wired to its corresponding unit panel and address. ENMAX will perform connectivity tests prior to installing the meters. If the connectivity test fails, the site electrician will be notified and required to correct the deficiencies. If the connectivity test passes, ENMAX will install the meters in the meter sockets. To request a connectivity test, please contact RMC@enmax.com.

7.6.1.4 GENERAL SITE SAFETY REQUIREMENTS

ENMAX meter system equipment must not be installed in areas classified as hazardous to the equipment or to ENMAX personnel working on or near it. Hazardous locations are defined as those where exposure to the following risks exist or is possible:

- a) Moving machinery or equipment,
- b) Excessive dust,
- c) Significant vibrations,
- d) Hazardous fumes,
- e) Flammable or toxic gases (e.g. H₂S),
- f) Water and/or moisture, including areas exposed to runoff from eaves or rainspouts,
- g) Inadequate lighting,
- h) Poor ventilation,
- i) Biological hazards, such as those found in livestock, poultry, or meat processing areas,
- j) Confined spaces, including hatchways or closets,
- k) Open pits or areas with fall hazards, such as elevated locations,
- l) Uneven surfaces or varying elevations, including stairways or ramps.

7.6.1.5 METER ACCESS REQUIREMENTS

Where ENMAX metering system devices and their associated disconnecting devices are not located on the main floor, access must be provided via an approved stairway, elevator, and/or escalator to ensure safe and efficient access for ENMAX personnel. The use of ladders is not considered suitable means of access and is therefore not permitted.

For multi-storey buildings with 3 or more floors, provisions must be available to transport meters to the location of the meter stack if an elevator is not available for such use.

7.6.1.6 METER ELECTRICAL CONFIGURATION REQUIREMENTS

ENMAX reserves the right to issue final approval for the configuration of all meter system equipment. The following requirements must be adhered to:

- a) Service entrance equipment must be installed on the same permanent structure where the utility service is connected. It cannot be used to supply power to different, separately metered permanent structures.
- b) The meter system equipment must be installed on the load side of its associated disconnecting device (cold sequence), unless otherwise permitted by ENMAX.
- c) The meter system equipment must be located on the load side of all ENMAX-owned power distribution transformer installations.
- d) Customer-owned transformers are not permitted to be installed on the line side of an ENMAX meter unless the transformer has a nameplate efficiency rating of 98% or greater. If this rating is not shown on the transformer nameplate, the Customer must provide documentation illustrating compliance with this requirement. For non-standard services, submit the request to RMPlanner@enmax.com.
- e) No Customer energy-consuming equipment may be connected upstream of the utility instrument transformer and utility meter with the exception of protection and control devices that are critical to the operation of the main disconnecting device and/or as part of the manufactured gear.
- f) Refer to [Table 4: Approved Electrical Load Management Devices](#), for a listing of the electrical management devices are permitted by ENMAX to be installed line side of the meter(s). If the device is not listed, submit a request to RMPlanner@enmax.com with the proposed specifications, single line diagram, data sheet of the proposed equipment.
- g) Meters must not be installed in hazardous locations or enclosed within a box, closet, or any construction that restricts access, as determined by ENMAX.
- h) If the finished grade is incomplete and the meter socket exceeds height limits, the Customer must provide a code-compliant platform.
- i) Where alterations are being made to a building or finished grade, any non-standard meter installation must be brought into compliance with current standards prior to ENMAX approving service energization.
 - a. If the meter socket is installed outside the specified height range, it shall be relocated to within the acceptable limits. Refer to [Meter Socket Installation Requirements](#).
 - b. If the meter is located within a private area, it must be relocated to a publicly accessible location. Refer to [Meter Socket Location requirements](#).

7.6.1.7 METER SOCKET LOCATION REQUIREMENTS

ENMAX reserves the right to provide final approval for the location of all meter system equipment. The following requirements must be adhered to:

- a) Metering equipment shall be installed in locations acceptable by both ENMAX and the inspection authority.
- b) Installations must provide continuous, unobstructed access through a common or public access point, such as:
 - An electrical room,
 - A common hallway, or
 - A public pathway.
- c) Access must be convenient, reasonable, and safe for ENMAX personnel at all times.
- d) Metering equipment shall not be installed in locations that may compromise safety, hinder reliable access, or present challenges to long-term serviceability and maintenance, such as:
 - Above decks or balconies,
 - Under carports or breezeways,
 - Within structures that may be enclosed in the future.

- e) Metering equipment shall be installed on or within a permanent structure that it directly services, ensuring adherence to CEC.
- f) Metering equipment must be located on or within the closest permanent structure to the utility supply, and within the legal land title boundaries of the property receiving electrical service.

Refer to [Drawings 504-0000-018: Meter Location](#).

7.6.1.8 METER SOCKET INSTALLATION REQUIREMENTS

- a) Installation height requirements:
 - i) **Minimum:** 0.91m (3ft) from finished grade to the top of the meter base.
 - ii) **Maximum:** 1.83m (6ft) from finished grade to the top of the meter base.
 - iii) **Preferred:** 1.60m (5.25ft) from finished grade to the top of the meter base.
- b) The meter enclosure must be bonded to system ground per CEC.
- c) The meter socket must be level on both the horizontal and vertical planes.
- d) If the finished grade is to be completed at a future date, and the meter socket exceeds the height requirement, the Customer must supply a platform to meet the height requirements. This platform must have proof of meeting building code standards.
- e) If installed, both the main service disconnect device, and any subservice disconnect devices must have provisions for ENMAX padlocks.

7.6.1.9 CLEARANCE REQUIREMENTS FOR METER SYSTEM EQUIPMENT

To ensure safe maintenance and operation, the following clearance requirements must be met for meter system equipment:

- a) A minimum working space of 1m wide by 2.2m high is required in front of all electrical equipment, and to the sides and back, where access is required (Must meet requirements of the CEC).
- b) A minimum working space of 6" is required from the edge of the electrical equipment containing the meter socket.
- c) A minimum passageway of 1m wide by 2.2m high must be maintained as an entrance or exit from all electrical areas. If 1200 amps or more, or rated over 750V (Must meet requirements of the CEC), there shall be two points of exit, or a minimum of 1.5m of unobstructed working space.
- d) ENMAX will not install meters where the metering equipment is less than 1m from any property line, fence, adjacent structure, or vegetation. It is not permissible to mount water, sewer, gas, or other non-electrical pipes, as well as equipment, directly above the electrical metering installation. Any Metering equipment that may be near flammable gas equipment must comply with the requirements of the CEC. Additionally, these elements must not encroach on the minimum required working space around the equipment.

7.6.1.10 CARE OF METERING EQUIPMENT

The Customer is required to exercise reasonable care for the protection of ENMAX equipment installed on the Customer's premises. In the event of damage, loss, or theft of the metering equipment after installation, the Customer may be held liable for the cost of repair or replacement. The Customer is prohibited from tampering with any ENMAX owned equipment.

To report damaged ENMAX distribution equipment, please contact trouble@enmax.com.

To report damaged ENMAX meter system equipment, please contact RMPlanner@enmax.com.

7.7 Residential Meter Systems

7.7.1 General Conditions

All single meter residential metering must meet the general conditions. Please refer to [General Conditions](#) section of this document.

7.7.2 Single Meter:

For a typical configuration of a meter system site, refer to [Drawing 504-0000-001 Residential Single Meter 200A or Less](#) or [Drawing 504-0000-002 Residential Single Meter Greater than 200A](#)

Category	200 Amps or Less	Greater than 200 Amps
Service Type	Single-phase 120/240V <ul style="list-style-type: none"> • Drawing 504-0000-008 120/240V 200A Single Phase Three Wire, 4 Jaw Meter Socket Polyphase 120/208V <ul style="list-style-type: none"> • Drawing 504-0000-009 120/208 200A Polyphase Three Wire, 5 Jaw Meter Socket 	<ul style="list-style-type: none"> • Single-phase 120/240V Drawing 504-0000-006 Single Phase Transformer Rated CT Connection Three Wire Circuit 120/240V • Polyphase L-N Voltage 120V-347V • Refer to Drawing 504-0000-007 Three Phase CT Layout
Meter System Configuration	<ul style="list-style-type: none"> • Hot sequence permitted, unless otherwise required by CEC 	<ul style="list-style-type: none"> • Cold sequence required • The main service disconnect must have locking provisions for an ENMAX padlock, that is integral to the device
Meter Socket Type	<ul style="list-style-type: none"> • See Table 1: Meter Socket 	
Instrument Transformer Enclosure	Not applicable	<ul style="list-style-type: none"> • Reserved exclusively for ENMAX meter equipment. • Cannot be used as a splitter box or to contain Customer equipment • Customer supplies & installs enclosure (Table 2): Secondary Voltage Current Transformer Enclosure • Must be in the same room and line of sight of the main disconnect and securely mounted and is level in all planes. • Installation height requirements: <ul style="list-style-type: none"> - Minimum: 1.22m (4ft) from finished grade to the top of the instrument transformer enclosure. Maximum: 1.83m (6ft) from finished grade to the top of the instrument transformer enclosure. - Preferred: 1.60m (5.25ft) from finished grade to the top of the instrument transformer enclosure. • Vertically hinged doors that are non-removable in the closed position.

		<ul style="list-style-type: none"> • Must have metal locking provisions for an ENMAX padlock, that is integral to the device
Conduit Between Meter Socket & Instrument Transformer	Not applicable	<ul style="list-style-type: none"> • Customer supplies and install the conduit • Minimum 152.4mm (6”) clearance between the meter socket and instrument transformer enclosure • Minimum 25.4mm (1”) conduit size. • Maximum 7m (22.97 ft) length • Maximum three 90-degree bends • No fittings with removable covers such as LB’s. • Terminate with lock nuts and bushings unless using threaded hubs • Continuous length of pull string required
Instrument Transformer Installation	Not applicable	<ul style="list-style-type: none"> • ENMAX supplies CTs (CT request form required) • Customer installs CTs on enclosure back panel, removable from the front • Use all mounting holes • CT nameplate must be clearly visible when the enclosure door(s) are open • Primary polarity mark must face utility supply • Customer completes primary wiring; ensuring clear secondary terminal access and supported conductors to prevent tensions on CTs • If installation is three phase, ENMAX requires that the isolated neutral bar has a terminal for #12 AWG copper wire that is accessible to ENMAX personnel for the purposes of completing the secondary wiring. • ENMAX completes secondary wiring
Additional Information	Not applicable	<ul style="list-style-type: none"> • To request a CT, please complete the Current Transformer Request form on enmax.com. A Site ID and electrical permit are required to complete the Current Transformer Request form.

7.7.3 Multiple Meters

	Duplexes/Townhouses	Apartment/Condos
Service Type	Single-phase 120/240V or Polyphase 120/208V	Polyphase 120/208V only
Typical Configuration	Drawing 504-0000-004 Residential Multi Meter Arrangement For up to 4 duplexes/townhouse, the meter system equipment may be configured in a hot sequence arrangement, unless otherwise required by CEC.	

- The number of metered services connected to a single service run must comply with requirements of the local AHJ and CEC.

- Any “house”, “public”, or “common” services for the building are considered as commercial services, and the meter system arrangement must be cold sequence.

7.8 Commercial Meter Systems

7.8.1 General Conditions

All commercial meters must meet the general conditions. Please refer to [General Conditions](#) section of this document.

7.8.2 Commercial Specific Requirements

- a) The meter system equipment must be configured in a cold sequence arrangement.
- b) Each meter must be installed on the load side of its own lockable disconnecting device. The disconnecting device must not interrupt the electrical service to any other meter.
- c) The main service and any subservice disconnecting devices must have provisions for ENMAX padlocks that is integral to the device.

All necessary instrument transformers will be provided by ENMAX and must be installed by the Customer.

7.8.3 Secondary Voltage Commercial

For a typical configurations of commercial metered systems, refer to [504-0000-003 General Commercial Single Meter Transformer Rated](#) or [504-0000-005 Commercial Multi Meter Arrangements](#)

Requirement	200 Amps or Less	Greater than 200 Amps
Service Type	<ul style="list-style-type: none"> • Polyphase 120/208V: Drawing 504-0000-009: 120/208 200A Polyphase Three Wire, 5 Jaw Meter Socket • Three-phase L-N Voltage 120V-347V Drawing 504-0000-010 Multi-Voltage L-N Voltage 120-347V 200A, Three Phase 4 Wire 7 Jaw Meter Socket 	<ul style="list-style-type: none"> • Three-phase L-N Voltage 120V-347V
Meter Configuration	<ul style="list-style-type: none"> • Each commercial occupant must have a dedicated utility meter. • Cold sequence required • Each meter must be installed on the load side of its own lockable disconnecting device. The disconnecting device must not interrupt the electrical service to any other meter. 	
Instrument Transformer Installation	Not applicable	<ul style="list-style-type: none"> • Reserved exclusively for ENMAX meter equipment • Cannot be used as a splitter box or to contain Customer equipment • Customer supplies and installs enclosure • Must be in same room & line of sight of meter socket & main disconnect • Securely mounted and level in all planes • Installation height requirements: <ul style="list-style-type: none"> ○ Minimum: 1.22m (4ft) from finished grade to the top of the instrument transformer enclosure.

		<ul style="list-style-type: none"> ○ Maximum: 1.83m (6ft) from finished grade to the top of the instrument transformer enclosure. ○ Preferred: 1.60m (5.25ft) from finished grade to the top of the instrument transformer enclosure. ● Vertically hinged doors that are non-removable in the closed position ● Must have metal locking provisions for an ENMAX padlock, that is integral to the device
Conduit Between Meter Socket & Instrument Transformer	Not applicable	<ul style="list-style-type: none"> ● Customer supplies and installs conduit ● Minimum 152.4mm (6”) clearance between the meter socket and instrument transformer enclosure ● Minimum 31.75mm (1¼”) conduit size. ● Rigid PVC conduit may be used if conduit run underground or inside main gear and bonded according to CEC requirements ● Maximum 7m (22.97 ft) length ● Maximum three 90-degree bends ● No fittings with removable covers such as LB’s. ● Terminate with lock nuts and bushings unless using threaded hubs ● Continuous length of pull string required
Instrument Transformer Installation	Not applicable	<ul style="list-style-type: none"> ● ENMAX supplies CTs and completes secondary wiring between instrument transformer and meter socket. ● Customer installs CTs on enclosure back panel, removable from the front ● Utilize all mounting holes ● CT nameplate must be clearly visible when the enclosure door(s) are open ● Primary polarity mark must face utility supply ● Customer completes primary wiring; ensuring clear secondary terminal access and supported conductors to prevent tensions on CTs ● The Customer shall install an isolated neutral bar in line with the supply neutral ● ENMAX requires that the isolated neutral bar has a terminal for #12 AWG copper wire that is accessible to ENMAX personnel for the purposes of completing the secondary wiring. ● Refer to Drawing 504-0000-007 Three Phase CT Layout
Additional Information	Not applicable	<ul style="list-style-type: none"> ● To request a CT, please complete the Current Transformer Request form on enmax.com. A Site ID and electrical permit are required to complete the Current Transformer Request form.

7.8.4 Interval Meter Requirements

7.8.4.1 EXISTING SITE

ENMAX may require an interval meter to be installed under the following circumstances:

- a) The Customer's peak demand exceeds 150 kVA on two occasions within the past 365 days.
- b) Modifications are made to the site's electrical equipment ratings, resulting in a demand greater than 150 kVA. For additional details, refer to [Table 3: Interval Meter Qualifications](#).

7.8.4.2 NEW SITE

An interval meter will be installed at all new sites with a planned installed capacity of 200 kVA or greater. For further details, refer to [Table 3: Interval Meter Qualifications](#).

7.8.4.3 COMMUNICATION CONDUIT REQUIREMENTS

Conduit Installation

A 19mm (3/4") EMT conduit must be installed from the meter enclosure to an antenna box located on the outside of the building, for meter communication purposes.

Maximum Conduit Length

The conduit shall not exceed 30m (100 ft) in length.

Junction Box and LB Installation

If junction boxes or LBs are used along the conduit run, they must not be installed at a height greater than 2m (6.56 ft) above finished grade.

7.8.4.4 ANTENNA BOX REQUIREMENTS

- a) The Customer is responsible for supplying and installing an antenna box, which shall be mounted on the building's exterior wall at a height between 1.5m and 1.8m above finished grade.
- b) If metering equipment is installed outside an antenna box is not required.
- c) The antenna box must be a minimum size of 150x150x100mm (6"x 6"x 4").
- d) The antenna box must be of type NEMA 3R pad-lockable, and equipped with a hinged door.

7.8.5 Primary Metered Service

7.8.5.1 GENERAL INFORMATION

Primary metered services encompass systems operating at greater than 750 V line-to-line. For detailed reference, see:

- [Drawing 504-0000-011: Primary Meter System Cell Wiring Diagram](#)
- [Drawing: 504-0000-012: Primary Meter System Configuration](#)

7.8.5.2 PROJECT APPLICATION

Primary metered projects are complex and often involve components with long lead times. To ensure timely project completion, we encourage you to contact us as early as possible. To initiate a primary metered service project, please contact getconnected@enmax.com.

7.8.5.3 PREFERRED AND ALTERNATE REQUIREMENTS

When two primary voltage feeders from ENMAX supply the same location, each feeder must have its own dedicated meter system.

7.8.5.4 INSTRUMENT TRANSFORMER SUPPLY

ENMAX provides the required meter system instrument transformers with all necessary fuses for the metering circuit.

CT and PTs are sized according to project specifications, they will be issued to the Customer to be installed in the switch gear once project electrical requirements are finalized.

For each primary metered service, a Site ID is required before requesting CTs and PTs.

7.8.5.5 CUSTOMER LOADS UPSTREAM OF UTILITY METERING

No Customer energy-consuming equipment (e.g. space heaters) may be connected upstream of the utility instrument transformer or meter with the exception of protection and control devices that are critical to the operation of the main disconnecting device.

7.8.5.6 METER INSTALLATION REQUIREMENTS

7.8.5.6.1 METER SOCKET REQUIREMENTS

Customers must supply and install all meter system equipment, including a separate meter socket for each primary metered service. The following requirements apply.

- a) A **13-jaw meter socket** (Socket Type #1) as specified in [Table 1: Meter Sockets for Service Types](#) must be supplied and installed.
- b) Securely mounted and level in all planes.
- c) The meter socket must be located within line of sight of the lockout means and disconnecting device.
- d) The meter enclosure and meter socket shall not be mounted on any part of the switchgear.
- e) Installation height requirements:
 - i) **Minimum:** 0.91m (3ft) from finished grade to the top of the meter base.
 - ii) **Maximum:** 1.83m (6ft) from finished grade to the top of the meter base.
 - iii) **Preferred:** 1.60m (5.25ft) from finished grade to the top of the meter base.
- f) A minimum working space of 1m wide by 2.2m high is required in front of all electrical equipment and to the sides and back where access is required (Must meet requirements of the CEC).
 - i) Clearance is measured from the outermost part of the meter socket to all property lines, fences, adjacent structures, and/or vegetation.
- g) It is not permissible to mount water, sewer, gas, or other non-electrical pipes, as well as equipment, directly above the electrical metering installation. Additionally, these elements must not encroach on the minimum required working space around the equipment.

If the finished grade is to be completed at a future date, and the meter socket exceeds the height requirement, the Customer must supply a platform to meet the height requirements. This platform must have proof of meeting building code standards.

A meter socket whose height above finished grade becomes greater or less than the specified limits, or a meter socket that is otherwise rendered inaccessible due to alterations to the building or finished grade level, must be moved and be brought into the limits specified above.

The meter socket must be bonded to system ground.

ENMAX will supply and install the meter.

7.8.5.6.2 METER COMMUNICATION REQUIREMENTS

The following communication requirements for meters must be adhered to. Please refer to [Drawing 504-0000-012 Primary Meter System Configuration](#).

The Customer is responsible for supplying and installing a run of conduit from each meter socket to the exterior of the building.

- a) The conduit shall be 19mm (3/4") EMT and terminate at a weatherproof, pad-lockable antenna box with minimum dimensions of 6" x 6" x 4"; for the external antenna.
- b) The conduit shall not exceed 30m (100 ft) in length.
- c) The Customer is responsible for supplying and installing an antenna box, which shall be mounted on the building's exterior wall at a height between 1.5m and 1.8m above finished grade.

ENMAX will supply and install the antenna and coax cable.

7.8.5.6.3 CONDUIT FROM METER SOCKET TO INSTRUMENT TRANSFORMER CELL

The Customer is required to supply and install the conduit between the meter socket and the instrument transformer cell. Refer to [Drawing: 504-0000-012 Primary Meter System Configuration](#)

- a) The instrument transformer enclosure and meter socket shall be connected by a 31.75mm (1 1/4") EMT conduit.
- b) The conduit length between the meter socket and the instrument transformer enclosure shall not exceed 7m.
- c) This conduit shall be terminated with lock nuts and bushings except where threaded hubs are supplied.
- d) The number of bends shall be kept to a minimum, but in no case shall there be more than three, or the equivalent of three, 90-degree bends.
- e) The conduit run shall be continuous and uninterrupted with no fittings with removable covers.
- f) The conduit shall be equipped with a continuous length of poly pull string.
- g) When it is necessary to route the conduit through switchgear compartments other than those reserved for ENMAX use, a metal conduit, or suitable metal raceway, shall be installed through each compartment for the exclusive use of ENMAX.

7.8.5.7 SWITCHGEAR SPECIFICATIONS

Refer to [Drawing 504-0000-011 Primary Meter System Cell Wiring Diagram](#)

7.8.5.7.1 UTILITY METERING ISOLATION POINTS

- a) An overcurrent protection/isolation cell (i.e. disconnecting device) must be installed upstream of the utility instrument transformer cell. This single isolation point must be capable of safely and securely controlling all upstream electricity.
- b) A single isolation point (i.e. disconnecting device) must be provided immediately downstream of the utility instrument transformer cell and upstream of any other Customer equipment. This single means of isolation must be capable of safely and securely controlling all downstream electricity.
- c) Barriers are required between all sections of the switchgear equipment, including between cells on either side of the utility instrument transformer cell.

7.8.5.7.2 UTILITY METERING CELL REQUIREMENTS

- a) A separate switchgear cell must be provided for the sole purpose of housing the utility instrument transformers. Refer to [Drawing 504-0000-011 Primary Meter System Cell Wiring Diagram](#)
- b) The size of the cell must be minimum 1.2 m (4ft) wide by 2m (7ft) tall.
 - The cell must have a hinged door, and have metal locking provisions for an ENMAX padlock, that is integral to the device.
- c) The cell is to be reserved for utility use only. No Customer equipment is to be installed inside the cell.
- d) The cell must be constructed so that all ENMAX instrument transformers located inside the cell are readily accessible and provide unhindered access.
- e) A horizontal working space of 3m (10ft) clearance is required in front of the utility instrument transformer cell.

7.8.5.7.3 GROUNDING REQUIREMENTS

- a) The Customer's switchgear manufacturer shall supply and install a total of eight ground ball studs in the utility instrument transformer cell.
- b) All ground ball studs must be positioned so that all grounding connections are easily accessible and can be safely installed from the front door of utility instrument transformer cell entrance.
- c) The Customer is responsible for designing, providing provisions for, and installing two ground balls per phase (totaling six phase bus ground balls):
 - i) one ground ball shall be located on each phase bus at the **entrance** to the utility instrument transformer cell.
 - ii) one ground ball shall be located on each phase bus **exiting** the utility instrument transformer cell.
- d) Two ground ball studs shall be mounted on the ground bus:
 - i) The ground bus shall be located near the bottom and across the front of the utility instrument transformer cell.
 - ii) Both the ground bus and ground ball studs shall be accessible from the front door opening of the utility instrument transformer cell.

7.8.5.7.4 INSTRUMENT TRANSFORMER REQUIREMENTS

The Customer is responsible for installing the current transformers within the instrument transformer enclosure as follows. Refer to [Drawing 504-0000-011 Primary Meter System Cell Wiring Diagram](#).

- a) One ENMAX CT and PT is required for each phase.
- b) All mounting holes on the instrument transformer must be utilized.
- c) The CT and PT connected to each phase bus must be installed between the two surrounding phase bus ground balls.
- d) The instrument transformer nameplates must be clearly visible when the front door(s) of the instrument transformer enclosure are open.
- e) The current transformers are positioned with the primary polarity mark pointing toward the utility supply.
- f) The instrument transformers and wiring within the instrument transformer enclosure must be positioned to allow unhindered access to the secondary terminals.
- g) Primary conductors shall be shaped and supported to prevent any tension on the instrument transformers.
- h) The Customer shall install a dedicated neutral bar in the utility cell that is bonded to the supply neutral that is accessible to ENMAX personnel.
- i) The potential transformer connection to the phase bus shall be on the line side of the current transformer, between two ground ball studs, and shall be of a "non-draw out" style.

- j) The potential transformer H2 connections shall be connected to the dedicated neutral bar using a minimum #8 AWG Copper white wire.
- k) All utility instrument transformer mounting baseplates shall be bonded to ground with a #8 AWG green insulated.
- l) The Customer is responsible for installing and completing the primary wiring of the instrument transformers. [Drawing 504-0000-011 Primary Meter System Cell Wiring Diagram](#) and - [Drawing: 504-0000-012 Primary Meter System Configuration](#)
- m) ENMAX will complete the secondary wiring between the instrument transformers and the meter socket.

7.8.5.8 OUTDOOR PRIMARY METERING REQUIREMENTS

- a) For primary voltage switchgear located outdoors, both the instrument transformer cell and the meter socket enclosure must be appropriately CSA rated for outdoor use. The instrument transformer compartment shall be equipped with a heater.
- b) The heater shall be on the same circuit and control as the heaters located in adjacent switchgear compartments.
- c) The power supply feeding the heating elements for the entire outdoor switchgear must come from the load side of the utility meter system equipment.

8 Additional Information

8.1 Pre-Energization Readiness Guide

8.1.1 Readiness guide for 200 amps or Less

This checklist contains the minimum requirements the Customer must complete before we can install a meter and energize their site. Refer to the specific section for additional details and requirements.

Meter Socket Ready

- a) Meter socket is installed correctly.
- b) Appropriate clearance is present in front of the meter socket.

***(Overhead Services Only) Attachment Point Equipment Ready**

- c) Overhead attachment point equipment is installed in an appropriate location.
- d) Overhead attachment point equipment is installed with appropriate clearances and is safe for ladder use.
- e) Service wires are prepared from the weatherhead to the meter socket.

***(Underground Services Only) ENMAX Transformer Ready**

- f) The ENMAX transformer is energized and ready to provide power.
- g) Service wires are pulled into the ENMAX supply point device, for example transformer, tub, pedestal, or vault.

Wires Ready

- h) Service wires are terminated into the main disconnect.
- i) Service wires are terminated into the top jaws of the meter socket.
- j) Wires from bottom jaws of the meter socket are terminated into unit panel.
- k) Wire phasing is identified and color coded.

Site Access Ready

- l) Access to the meter socket is safe and readily available.
- m) Area around the meter socket is clear of foliage and debris.

Civil Work Ready

- n) Grade in front of the meter socket is level and at the required height.

On-site Generation Disconnected and Isolated

- o) Any on-site generation is disconnected and isolated from the meter socket including any wires or devices connected to the meter socket.

Address Markings Ready

p) Full address marked on the site structure, the meter socket, and associated unit panel.

Assurance Site is Safe and Ready for Connection

The Customer shall ensure that:

- a) The operator of the utility system has assurance from the owner or the owner's agent that the installation is ready for connection and no obvious hazards should result,
- b) The operator of the utility system has received a copy of a valid permit or authorization issued by the consumer's authority having jurisdiction.

8.1.2 Readiness guide for greater than 200 Amps

This checklist contains the minimum requirements the Customer must complete before we can install a meter and energize their site. Refer to the specific section for additional details and requirements.

Note: *If required, refer to applicable section for more information.

Meter Socket Ready

- a) Meter socket is installed correctly (refer to applicable section for more information).
- b) Appropriate clearance is present in front of the meter socket.

Instrument Transformer Equipment Ready

- c) Instrument Transformer equipment is installed correctly (refer to applicable section for more information).
- d) Service wires connected at instrument transformer.

***(Overhead Services Only) Attachment Point Equipment Ready**

- e) Overhead attachment point equipment is installed in an appropriate location.
- f) Overhead attachment point equipment is installed with appropriate clearances and is safe for ladder use.
- g) Service wires are prepared from the weatherhead to the meter socket.

***(Underground Services Only) ENMAX Transformer Ready**

- h) The ENMAX transformer is energized and ready to provide power.
- i) Service wires are pulled into the ENMAX supply point device, for example transformer, tub, or pedestal.

Wires Ready

- j) Service wires are terminated into the main disconnecting device.
- k) Wire phasing is identified and color coded.

Site Access Ready

- l) Access to the meter socket is safe and readily available.
- m) Area around the meter socket is clear of foliage and debris.

Civil Work Ready

- n) Grade in front of the meter socket is level and at the required height.

On-site Generation

- o) Any on-site generation is disconnected and isolated from the meter socket including any wires or devices connected to the meter socket.

Address Markings Ready

- p) Full address marked on the site, meter socket and main disconnecting device.

Assurance Site is Safe and Ready for Connection

The Customer shall ensure that:

- c) The operator of the utility system has assurance from the owner or the owner's agent that the installation is ready for connection and no obvious hazards should result,
- d) The operator of the utility system has received a copy of a valid permit or authorization issued by the consumer's authority having jurisdiction.

8.2 Tables

Table 1: Meter Sockets for Service Types

Amps	Voltage	Phase	Wire	Socket Details	Minimum Dimensions (in centimeters)	Wiring Configuration
Less than 200A	120V/240V	1	3	4 Jaw	Must meet Standard ANSI meter form	504-0000-008: 120/240V 200A Single Phase Three Wire, 4 Jaw Meter Socket
	120V/208V	3	3	5 Jaw		504-0000-010: Multi-Voltage 120/347V 200A, Three Phase 4 Wire 7 Jaw Meter Socket
	120V/208V, 277V/480V, 347V/600V	3	4	7 Jaw		
Greater than 200A	120/240	1	3	4 Jaw c/w Test Switch	48cm (Height) x 30cm (Width) x 14cm (Depth)	504-0000-006: Single Phase Transformer Rated CT Connection Three Wire Circuit 120/240V
	120/208, 277/480, 347/600	3	4	13 Jaw c/w Test Switch		Must comply with Measurement Canada S-E-08

Note #1: Meter sockets must meet CEC requirements and pre-wired by the Manufacturer to meet Measurement Canada requirements.

Note #2: For Meters sockets that require a test switch, the test switch must have CT shorting functionality.

Note #3: For Meter sockets that require a test switch, the meter socket must have a lockable and removable test switch cover, and the test switch must be sealable.

Note #4: No Meter socket shall have provisions where the removal of the meter shorts the CTs automatically.

Note #5: All Meter sockets must have provisions for locking rings.

Table 2: Secondary Voltage Current Transformer Enclosure

Service Voltage	Phase	Wire	Service Frame Size	Minimum Size cm(in)			No. of CT's Required	CT Type
				H	W	D		
120V/240V	1	3	200A-400A	61(24)	61(24)	25(10)	1	3 wire
			400A-600A	76(30)	76(30)	25(10)	1	3 wire
120V/208V	3	4	200A-1200A	91(36)	91(36)	30(12)	3	2 wire
277V/480V			1200A-3000A	122(48)	122(48)	30(12)	3	2 wire
347V/600V								

Table 3 Interval Meter Qualifications

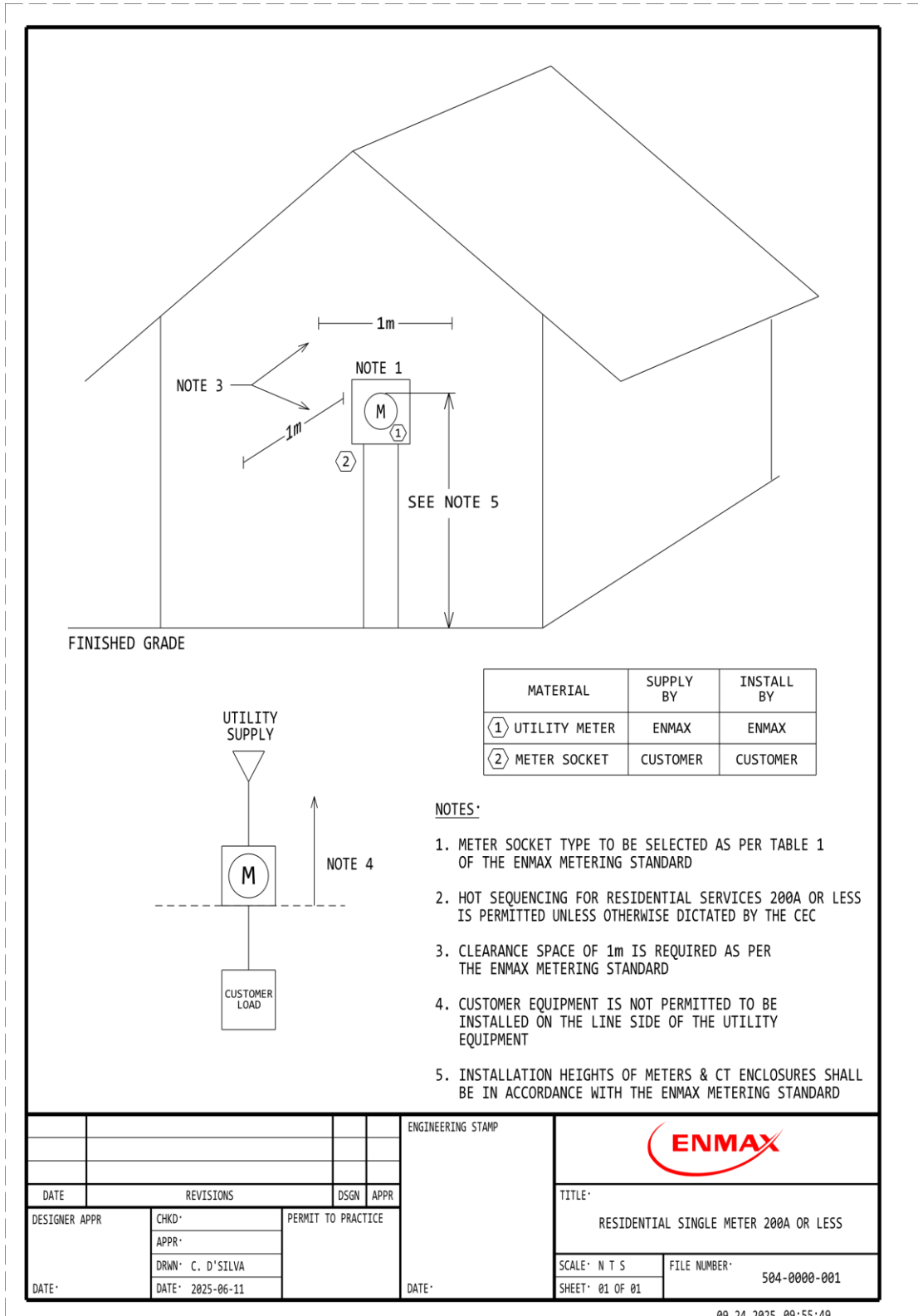
Service Voltage	Service Disconnect Frame Size
120V/208V	800A
277V/480V	400A
347V/600V	300A

Table 4 Approved Electrical Load Management Devices

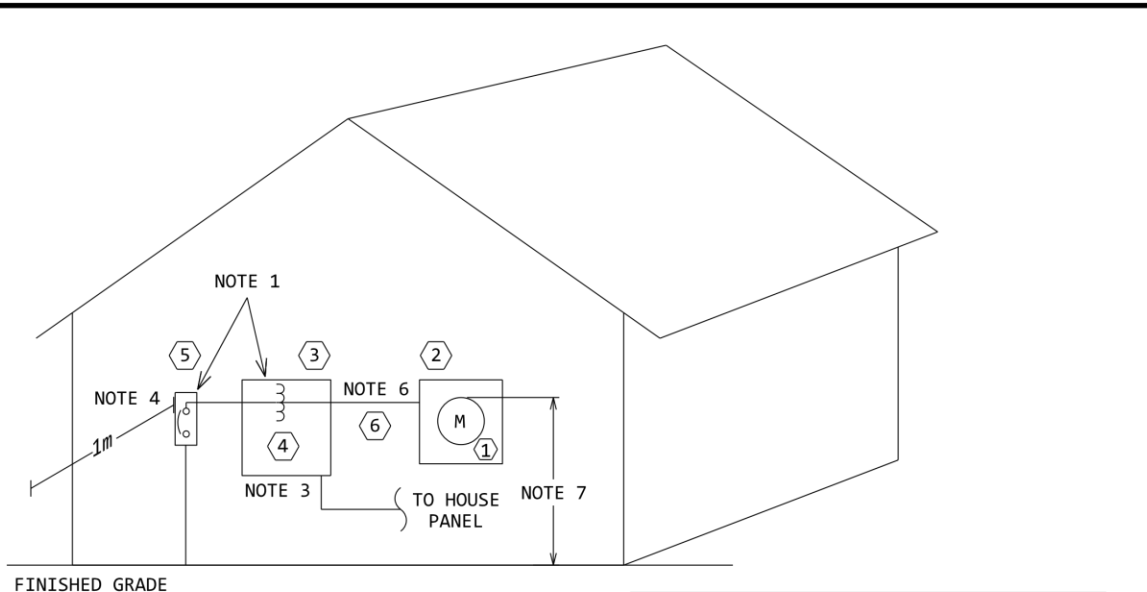
Manufacturer	Model Description
BlackBox	Multi-Residential Energy Management Hub

8.3 Drawings

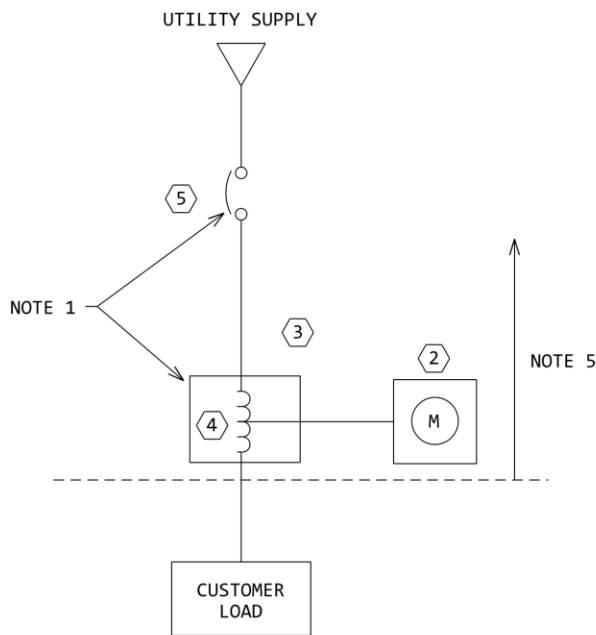
8.3.1 Residential Single Meter 200A or Less



8.3.2 Residential Single Meter Greater than 200A




	SUPPLY BY	INSTALL BY
① UTILITY METER	ENMAX	ENMAX
② METER SOCKET	CUSTOMER	CUSTOMER
③ CT ENCLOSURE (NOTE 2)	CUSTOMER	CUSTOMER
④ UTILITY CTS	ENMAX	CUSTOMER
⑤ DISCONNECT	CUSTOMER	CUSTOMER
⑥ 1" CONDUIT	CUSTOMER	CUSTOMER



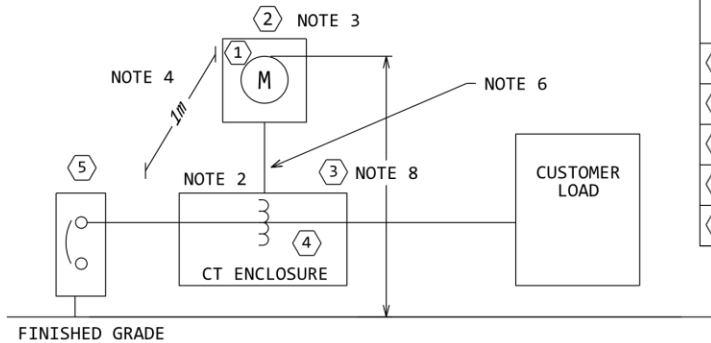
NOTES:

- METER MUST BE LOCATED OUTDOORS CT AND DISCONNECT MAY BE LOCATED INDOORS CT ENCLOSURE AND DISCONNECT SHALL BE WITHIN LINE OF SIGHT OF EACH OTHER
- CT ENCLOSURE SIZE AS PER TABLE 2 OF THE ENMAX METERING STANDARD
- METER SOCKET MUST INCLUDE TEST BLOCK FOR TRANSFORMER RATED INSTALLATIONS
- CLEARANCE SPACE OF 1m IS REQUIRED AS PER THE ENMAX METERING STANDARD
- CUSTOMER EQUIPMENT IS NOT PERMITTED TO BE INSTALLED ON OR LINE SIDE OF UTILITY EQUIPMENT
- CONDUIT FROM CT ENCLOSURE TO METER MUST BE MIN 3" LONG AND NO GREATER THAN 7m LONG
- INSTALLATION HEIGHTS OF METERS AND CT ENCLOSURES SHALL BE IN ACCORDANCE WITH THE ENMAX METERING STANDARD

				ENGINEERING STAMP			
DATE	REVISIONS	DSGN	APPR				
DESIGNER APPR	CHKD: APPR:	PERMIT TO PRACTICE				SCALE: N T S	FILE NUMBER: 504-0000-002
DATE:	DRWN: C. D'SILVA DATE: 2025-06-11					SHEET: 01 OF 01	

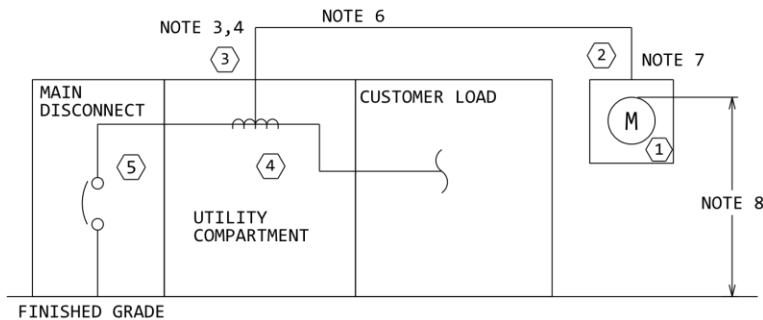
8.3.3 General Commercial Single Meter Transformer Rated

OPEN ARRANGEMENT (NOTE 1)

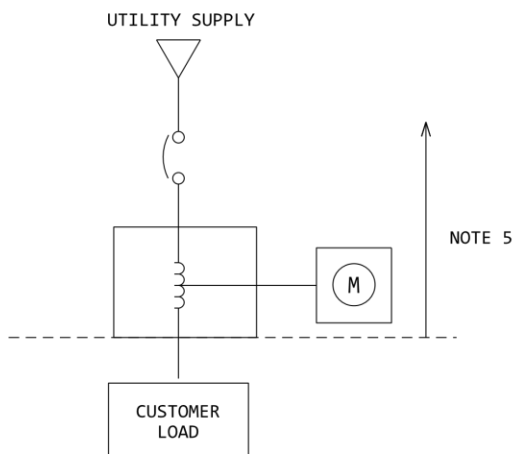


	SUPPLY BY	INSTALL BY
①	ENMAX	ENMAX
②	CUSTOMER	CUSTOMER
③	CUSTOMER	CUSTOMER
④	ENMAX	CUSTOMER
⑤	CUSTOMER	CUSTOMER

SWITCHGEAR ARRANGEMENT (NOTE 1)



WIRING VIEW



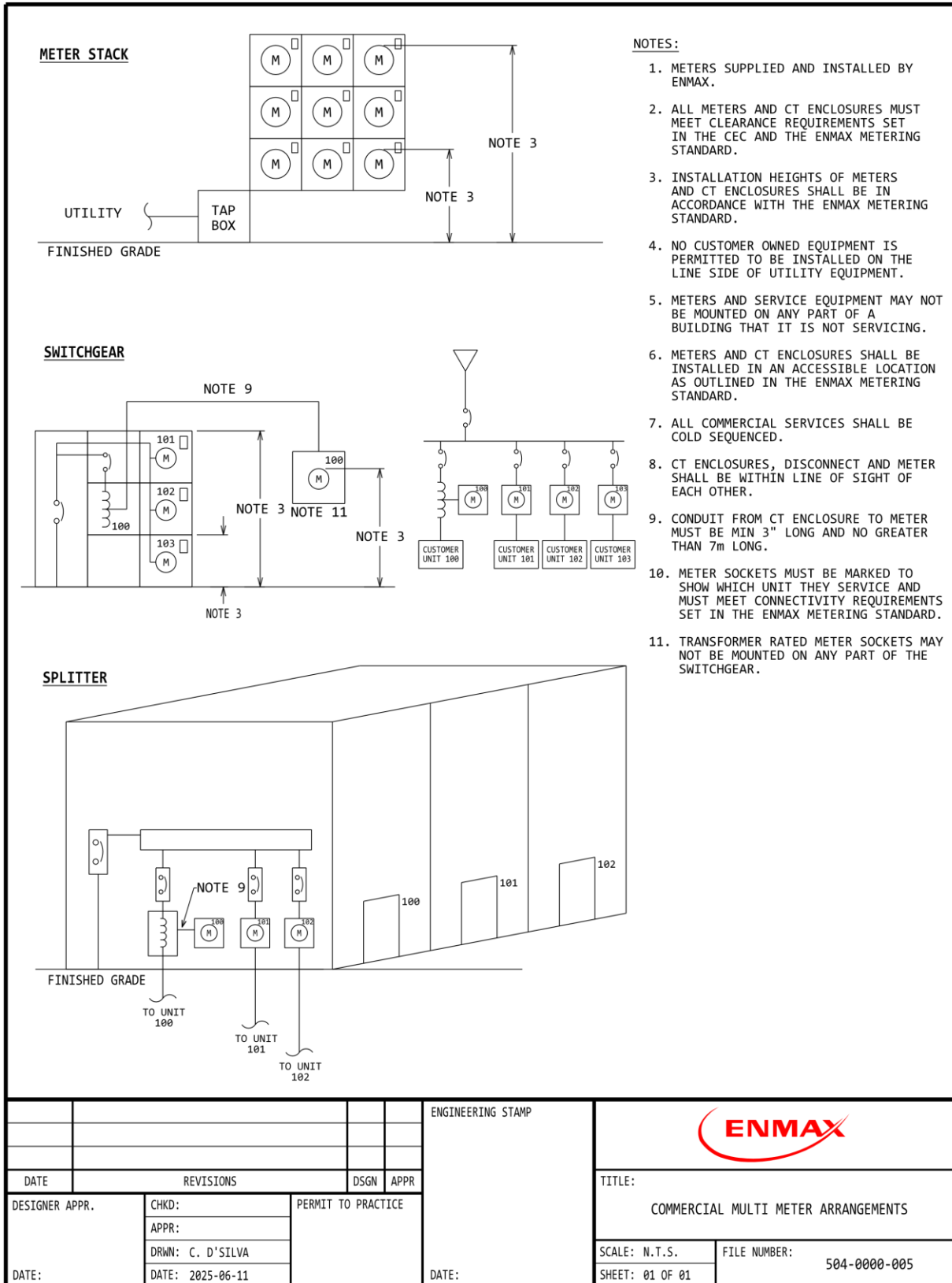
NOTES:

1. ALL COMMERCIAL SERVICES SHALL BE COLD SEQUENCED. CT ENCLOSURE, DISCONNECT AND METER SHALL BE WITHIN LINE OF SIGHT OF EACH OTHER
2. CT ENCLOSURE SIZE AS PER TABLE 2 OF THE METERING STANDARD
3. CT SWITCHGEAR ENCLOSURE SIZES MAY DIFFER FROM TABLE 2 IF VERIFICATION CONFIRMS ADEQUATE SPACE FOR SAFE INSTALLATION OF ENMAX CTS
4. CLEARANCE SPACE OF 1m IS REQUIRED AS PER THE ENMAX METERING STANDARD
5. CUSTOMER EQUIPMENT IS NOT PERMITTED TO BE INSTALLED ON THE LINE SIDE OF UTILITY EQUIPMENT
6. CONDUIT FROM CT ENCLOSURE TO METER MUST BE MIN 3" LONG AND NO GREATER THAN 7m LONG
7. METER SOCKET IS NOT PERMITTED TO BE MOUNTED ON SWITCHGEAR
8. INSTALLATION HEIGHTS OF METERS AND CT ENCLOSURES SHALL BE IN ACCORDANCE WITH THE ENMAX METERING STANDARD

				ENGINEERING STAMP			
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	DRWN: C. D'SILVA						
DATE:	DATE: 2025-06-11						

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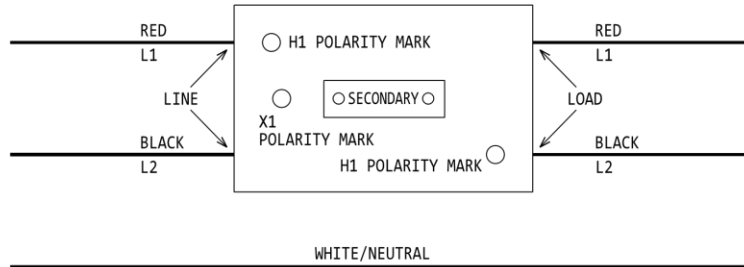
8.3.5 Commercial Multi Meter Arrangements



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DESIGNER APPR.	CHKD:	PERMIT TO PRACTICE		DATE:		SCALE: N.T.S.	FILE NUMBER: 504-0000-005
DATE:	APPR:	DRWN: C. D'SILVA	DATE: 2025-06-11			SHEET: 01 OF 01	

8.3.6 Single Phase Transformer Rated CT Connection Three Wire Circuit, 120/240V

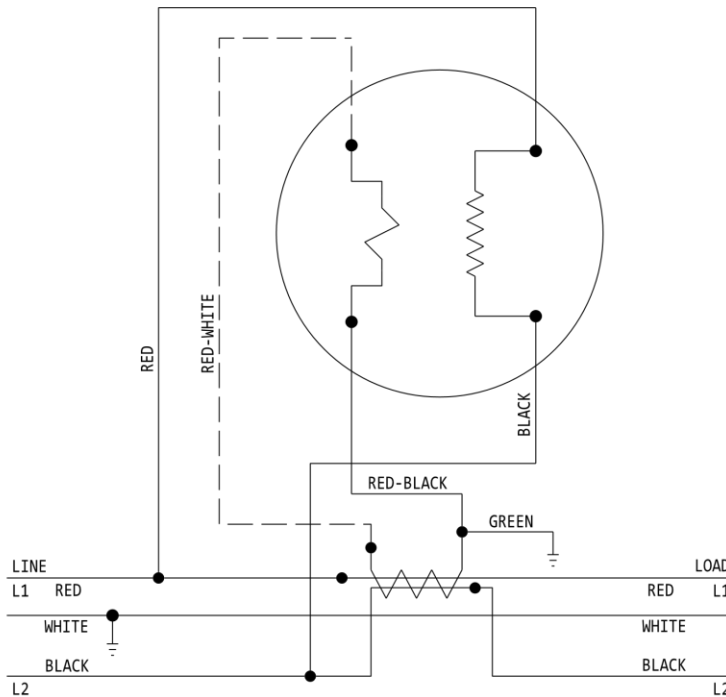
SINGLE PHASE TRANSFORMER RATED CT CONNECTION




NOTE 1: CONNECT THE INCOMING SUPPLY TO THE LINE SIDE TERMINALS

NOTE 2: FOR SINGLE PHASE 3 WIRE CT'S, THE SUPPLY (L1/L2) SHALL BE CONNECTED TO THE SAME SIDE OF THE CT

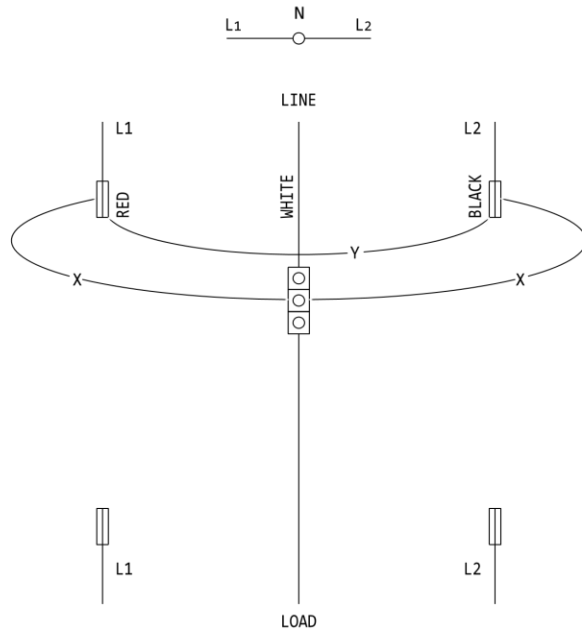
TRANSFORMER RATED, SINGLE-PHASE, THREE WIRE CIRCUIT, 120/240V




CIRCUIT: SINGLE PHASE, 3 WIRE
TRANSFORMER: 1, 3-WIRE C.T

				ENGINEERING STAMP			
DATE	REVISIONS	DSGN	APPR	TITLE: SINGLE PHASE TRANSFORMER RATED CT CONNECTION THREE WIRE CIRCUIT, 120/240V			
DESIGNER APPR	CHKD: APPR:	PERMIT TO PRACTICE		SCALE: N T S	FILE NUMBER:	504-0000-006	
DATE:	DATE: 2025-03-28			SHEET: 01 OF 01			

8.3.8 120/240V, 200A, Single Phase Three Wire, 4 Jaw Meter Socket

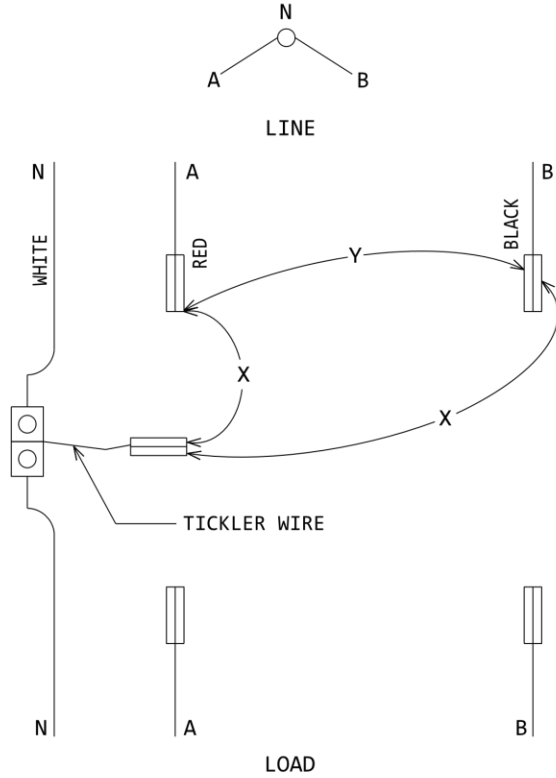


LINE VOLTAGE	MEASURED VOLTAGE	
	X	Y
120/240	120	240

				ENGINEERING STAMP			
DATE	REVISIONS	DSGN	APPR	TITLE			
DESIGNER APPR	CHKD	PERMIT TO PRACTICE		120/240V, 200A, SINGLE PHASE THREE WIRE, 4 JAW METER SOCKET		SCALE	FILE NUMBER
DATE	APPR					N T S	504-0000-008
	DRWN					SHEET	01 OF 01
	DATE						
	2025-03-28						


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8.3.9 120/208, 200A, Polyphase Three Wire, 5 Jaw Meter Socket



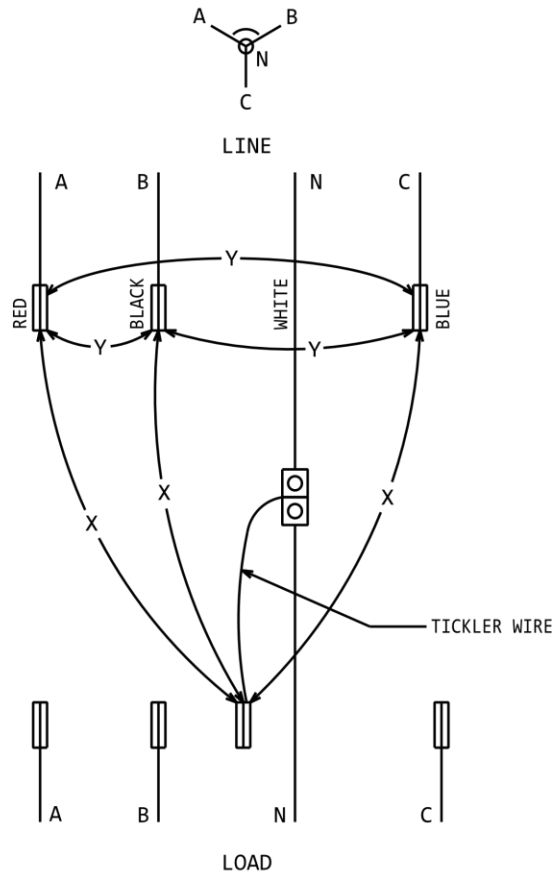
LINE VOLTAGE	MEASURED VOLTAGE	
	X	Y
120/208	120	208

NOTE 1: A WHITE NEUTRAL CONDUCTOR MUST BE PULLED FROM THE ENMAX TRANSFORMER AND TERMINATED AT THE 9 O'CLOCK TERMINAL OF THE METER SOCKET. THE NEUTRAL CONDUCTOR SHALL BE SIZED AT #12 AWG OR GREATER


				ENGINEERING STAMP			
DATE	REVISIONS		DSGN	APPR	TITLE		
DESIGNER APPR	CHKD	PERMIT TO PRACTICE		120/208, 200A, POLYPHASE THREE WIRE, 5 JAW METER SOCKET			
DATE	APPR			SCALE	N T S	FILE NUMBER	504-0000-009
	DRWN			SHEET	01 OF 01		
	DATE	2025-03-28		DATE			

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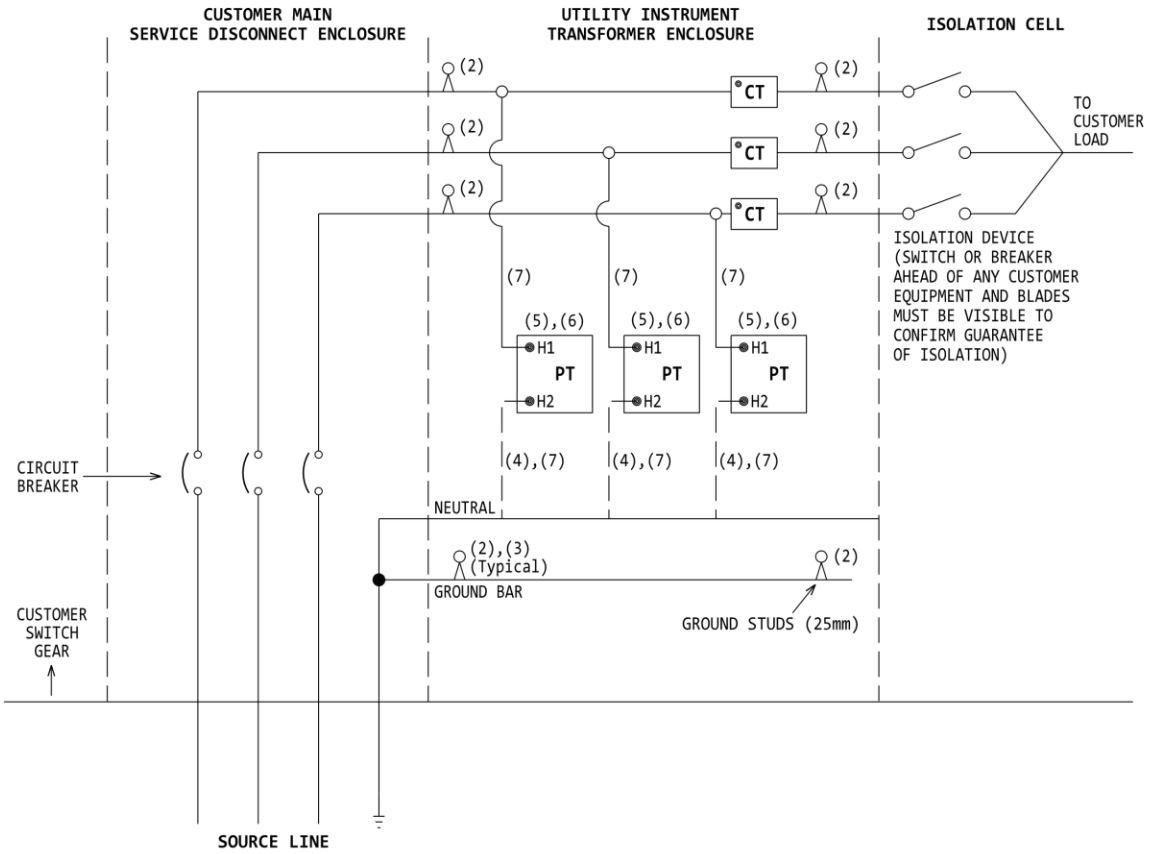
8.3.10 Multi-Voltage L-N Voltage 120-347V, 200A, Three Phase 4 Wire, 7 Jaw Meter Socket



LINE VOLTAGE	MEASURED VOLTAGE	
	X	Y
120/208	120	208
277/480	277	480
347/600	347	600

				ENGINEERING STAMP			
DATE	REVISIONS	DSGN	APPR	TITLE: MULTI VOLTAGE L-N VOLTAGE 120-347V, 200A, THREE PHASE 4 WIRE, 7 JAW METER SOCKET			
DESIGNER APPR	CHKD: APPR:	PERMIT TO PRACTICE		SCALE: N T S	FILE NUMBER: 504-0000-010		
DATE:	DRWN: C. D'SILVA DATE: 2025-03-28	DATE:		SHEET: 01 OF 01			

8.3.11 Primary Meter System Cell Wiring Diagram

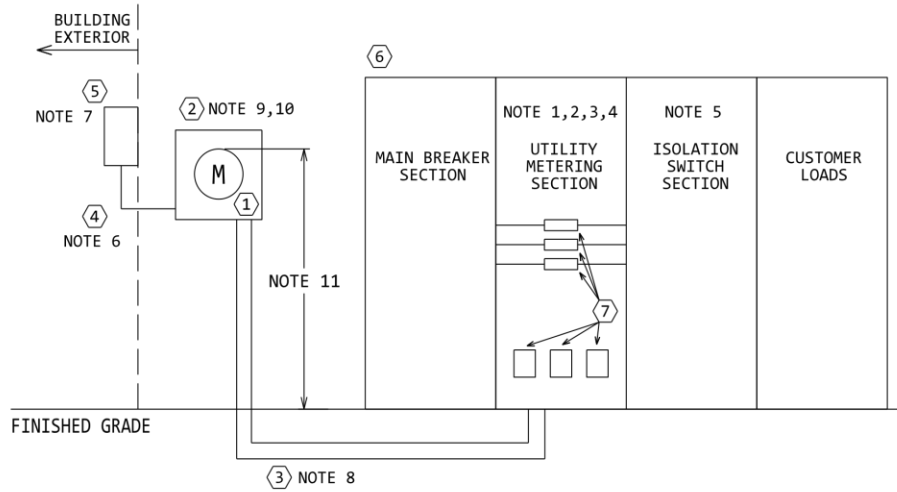


NOTES

- (1) ALL GROUND STUDS ARE TO BE ACCESSIBLE FROM THE SAME CELL OPENING, WITH THE GROUND BUS IMMEDIATELY INSIDE THAT OPENING
- (2) GROUND STUDS TO BE SUPPLIED AND INSTALLED BY CUSTOMER
- (3) GROUND STUDS MUST BE INSTALLED ON GROUND BAR WHICH MUST EXTEND ACROSS THE FRONT OF THE UTILITY ENCLOSURE, AND NOT OBSTRUCT ACCESS TO PT TERMINALS GROUND STUDS SHALL BE MINIMUM 6" DISTANCE FROM THE CELL WALL
- (4) NEUTRAL CONDUCTOR SHALL BE WHITE, RATED FOR APPLICABLE SERVICE VOLTAGE, AND A MINIMUM SIZE OF #8 AWG COPPER
- (5) ENMAX WILL SUPPLY INSTRUMENT TRANSFORMERS. CUSTOMER SHALL PICK UP AND INSTALL INSTRUMENT TRANSFORMERS IN SWITCHGEAR
- (6) CT AND PT BASE PLATES SHALL BE BONDED TO GROUND BY CUSTOMER USING GREEN-INSULATED CONDUCTORS
- (7) H1 TO PHASE & H2 TO NEUTRAL CONNECTIONS COMPLETED BY CUSTOMER

				ENGINEERING STAMP			
DATE	REVISIONS		DSGN	APPR	TITLE: PRIMARY METER SYSTEM CELL WIRING DIAGRAM		
DESIGNER APPR	CHKD	PERMIT TO PRACTICE		SCALE: N T S		FILE NUMBER: 504-0000-011	
DATE	APPR	DRWN: C. D'SILVA	DATE: 2025-03-28	DATE	SHEET: 01 OF 01		


8.3.12 Primary Meter System Configuration



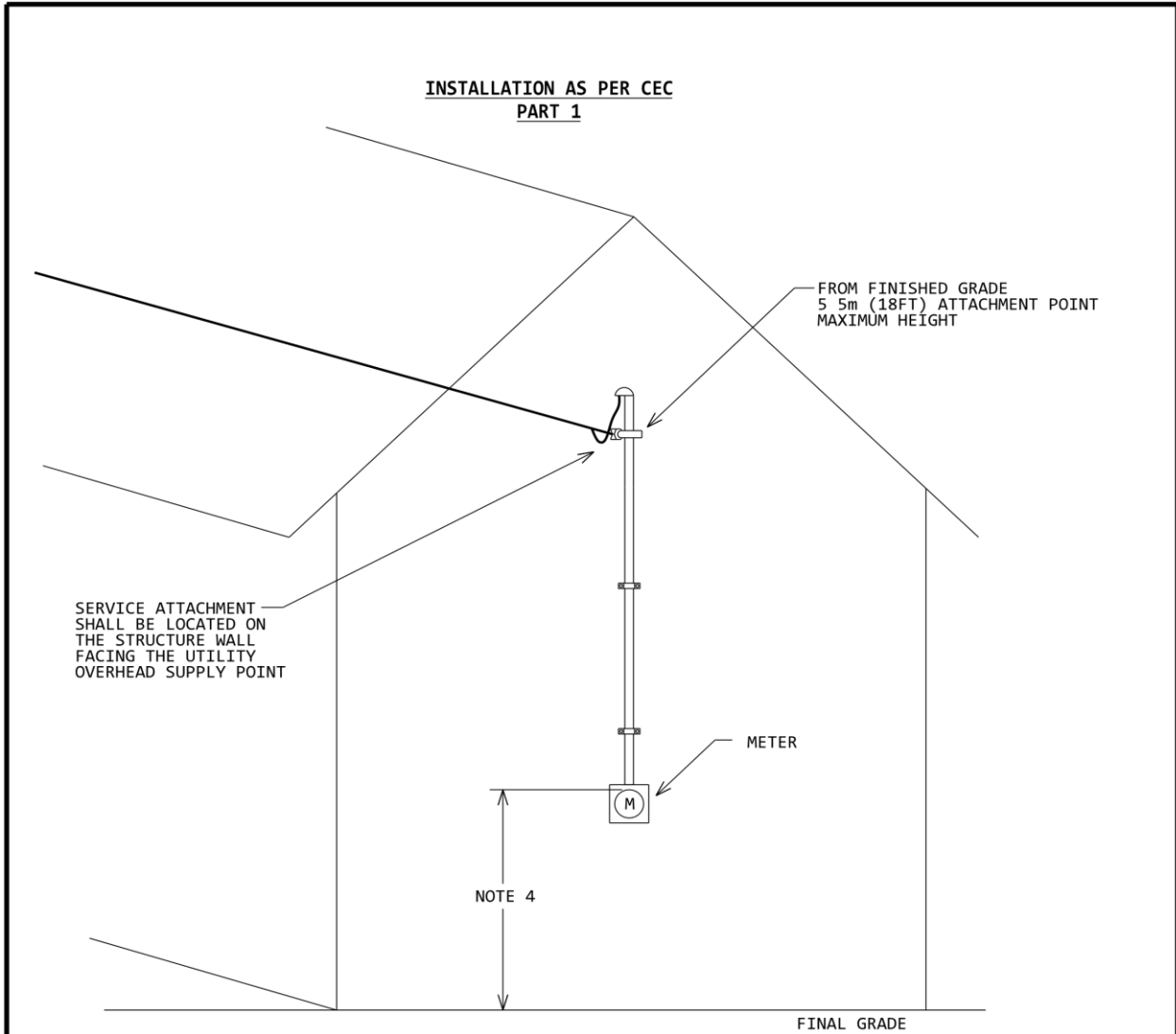
MATERIAL	SUPPLY BY	INSTALL BY
① UTILITY METER	ENMAX	ENMAX
② METER SOCKET	CUSTOMER	CUSTOMER
③ METER CONDUIT	CUSTOMER	CUSTOMER
④ ANTENNA CONDUIT	CUSTOMER	CUSTOMER
⑤ ANTENNA BOX	CUSTOMER	CUSTOMER
⑥ SWITCHGEAR LINEUP	CUSTOMER	CUSTOMER
⑦ CTS & PTS W/FUSES	ENMAX	CUSTOMER

NOTES:

1. UTILITY CELL DIMENSION MUST BE MINIMUM 1.2M WIDE & 2M TALL.
2. A 3M UNOBSTRUCTED WORKING CLEARANCE MUST BE MAINTAINED IN FRONT OF THE UTILITY METERING CELL.
3. NO CUSTOMER OWNED EQUIPMENT IS PERMITTED TO BE INSTALLED INSIDE THE UTILITY METERING CELL.
4. NO CUSTOMER OWNED EQUIPMENT IS PERMITTED TO BE INSTALLED ON THE LINE SIDE OF UTILITY EQUIPMENT UNLESS IT IS REQUIRED FOR SYSTEM PROTECTION.
5. ONLY 1 SINGLE POINT OF ISOLATION IS PERMITTED ON THE LOAD SIDE OF THE UTILITY METERING CELL.
6. ANTENNA CONDUIT MUST BE MINIMUM 3/4" DIAMETER AND BE INSTALLED FROM THE METER SOCKET TO THE ANTENNA BOX. THE ANTENNA CONDUIT LENGTH MAY NOT EXCEED 30M.
7. THE ANTENNA BOX MUST BE WEATHERPROOF, PADLOCKABLE WITH MINIMUM DIMENSIONS OF 6"X6"X4" AND IT MUST BE MOUNTED AT A HEIGHT OF 1.6M FROM FINISHED GRADE TO THE TOP OF THE BOX.
8. METER CONDUIT RUN MUST BE MINIMUM 1 1/4" DIAMETER AND HAVE A MAXIMUM LENGTH OF 7M. THE METER CONDUIT RUN MAY BE ABOVE GROUND OR UNDERGROUND.
9. METER SOCKET MAY NOT BE MOUNTED ON ANY PART OF THE SWITCHGEAR.
10. METER SOCKET MUST HAVE A MINIMUM WORKING SPACE AS DEFINED IN THE ENMAX METERING STANDARD.
11. INSTALLATION HEIGHTS OF METERS & CT ENCLOSURES SHALL BE IN ACCORDANCE WITH THE ENMAX METERING STANDARD.

				ENGINEERING STAMP			
DATE	REVISIONS	DSGN	APPR				
DESIGNER APPR.	CHKD: APPR:	PERMIT TO PRACTICE				SCALE: N.T.S.	FILE NUMBER: 504-0000-012
DATE:	DATE: 2025-06-11			DATE:		SHEET: 01 OF 01	

8.3.13 Typical Residential Overhead Service



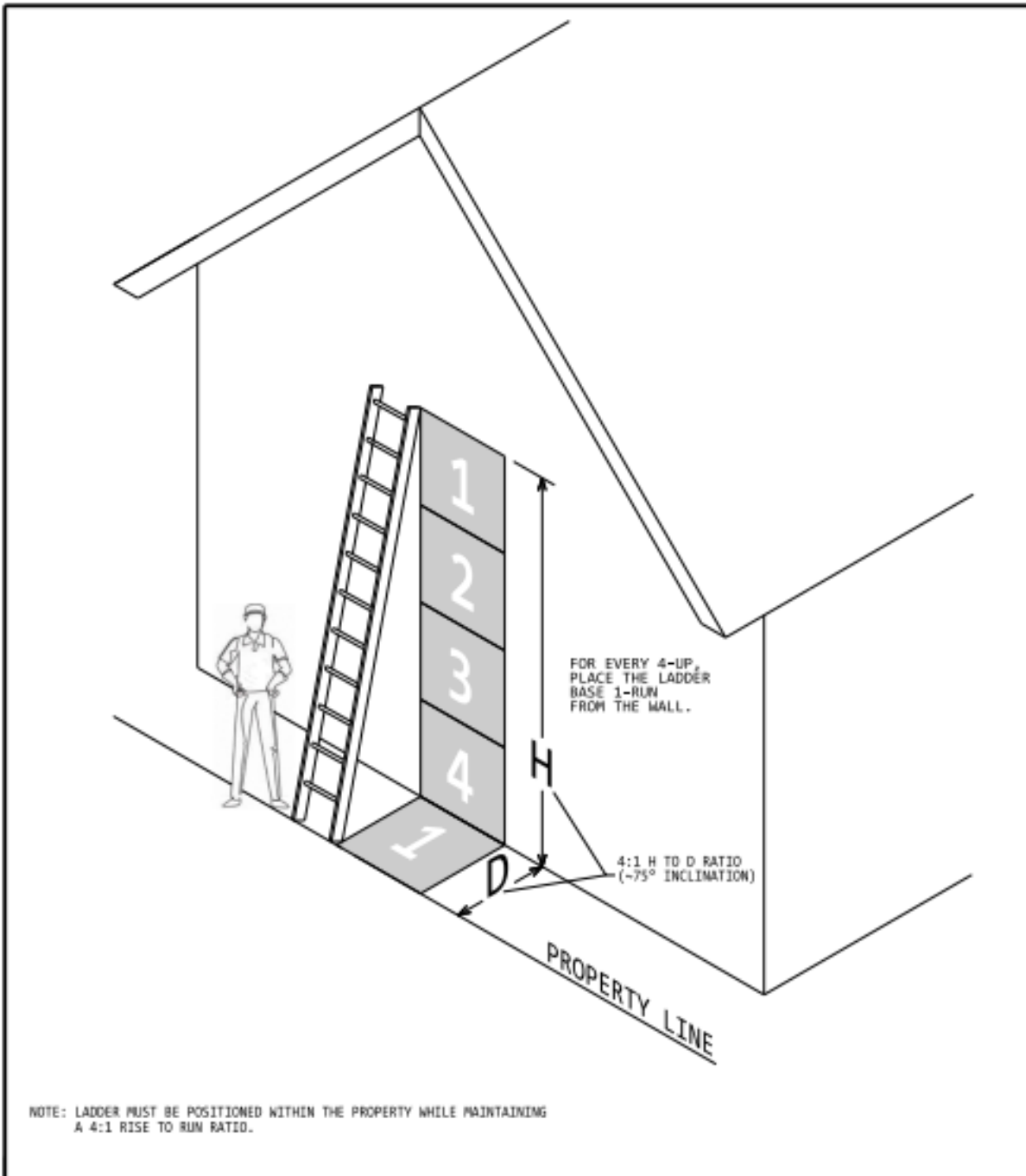
NOTES:


1. SERVICE ATTACHMENT EQUIPMENT MUST BE LOCATED ON A PERMANENT STRUCTURE
2. SERVICE ATTACHMENT EQUIPMENT MUST BE ON THE PERMANENT STRUCTURE THAT IS CLOSEST TO THE UTILITY OVERHEAD SUPPLY POINT
3. SERVICE ATTACHMENT EQUIPMENT MUST BE LOCATED ON THE SIDE OF THE STRUCTURE/WALL FACING THE UTILITY OVERHEAD SUPPLY POINT
4. INSTALLATION HEIGHTS OF METERS AND CT ENCLOSURES SHALL BE IN ACCORDANCE WITH THE ENMAX METERING STANDARD

ENGINEERING STAMP					
DATE	REVISIONS	DSGN	APPR	TITLE: TYPICAL RESIDENTIAL OVERHEAD SERVICE	
DESIGNER APPR	CHKD: APPR:	PERMIT TO PRACTICE		SCALE: N T S	FILE NUMBER: 504-0000-013
DATE:	DRWN: C. D'SILVA DATE: 2025-06-11			SHEET: 01 OF 01	

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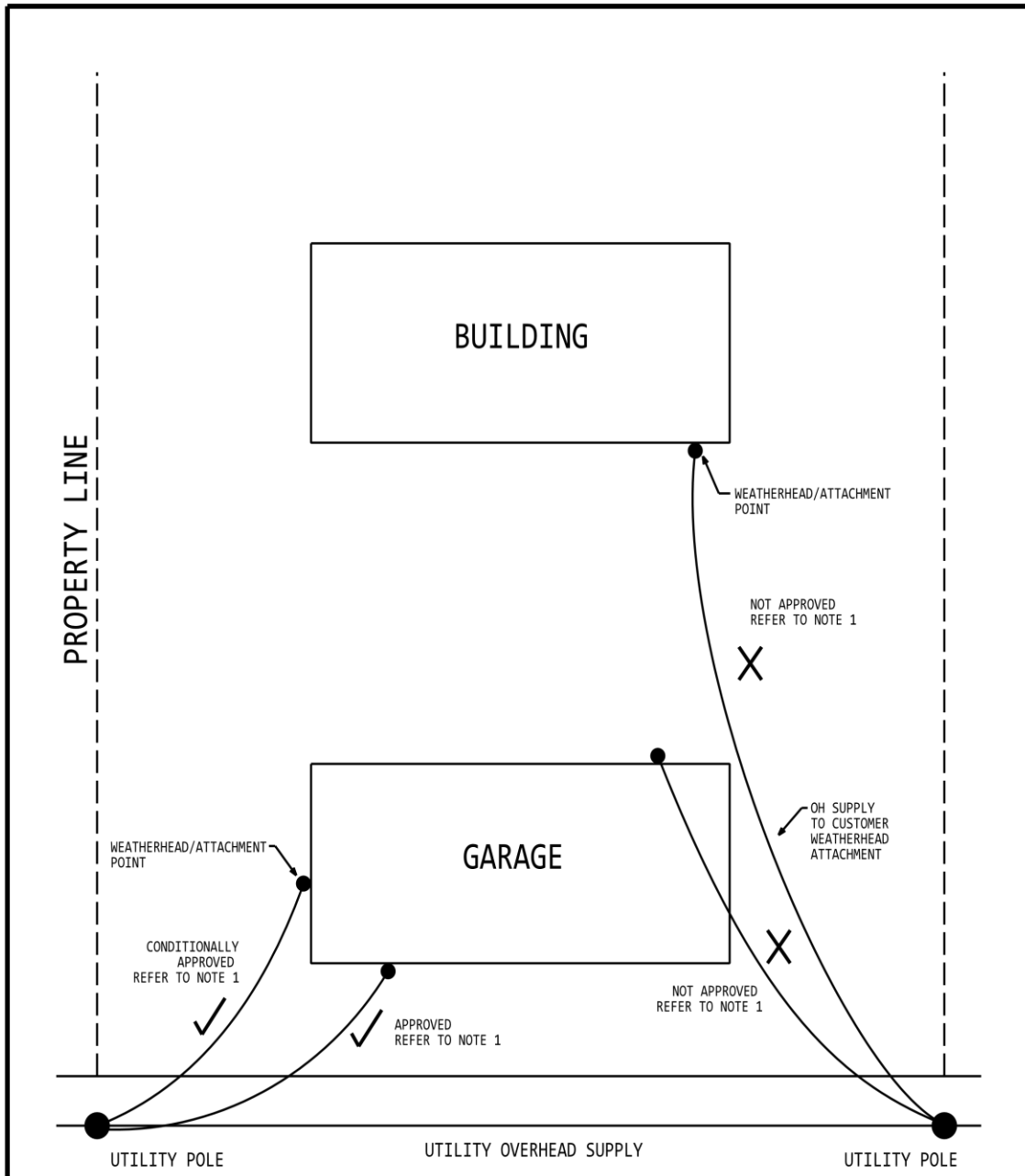
8.3.14 Safe Ladder Use




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DESIGNER APPR.	CHKD:	PERMIT TO PRACTICE		DATE:		SHEET: 01 OF 01	
	APP:						
	DRWN: C. D'SILVA						
DATE:	DATE: 2025-03-28						

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8.3.15 Weatherhead/Attachment Point Scenario 1: Single Building with a Garage

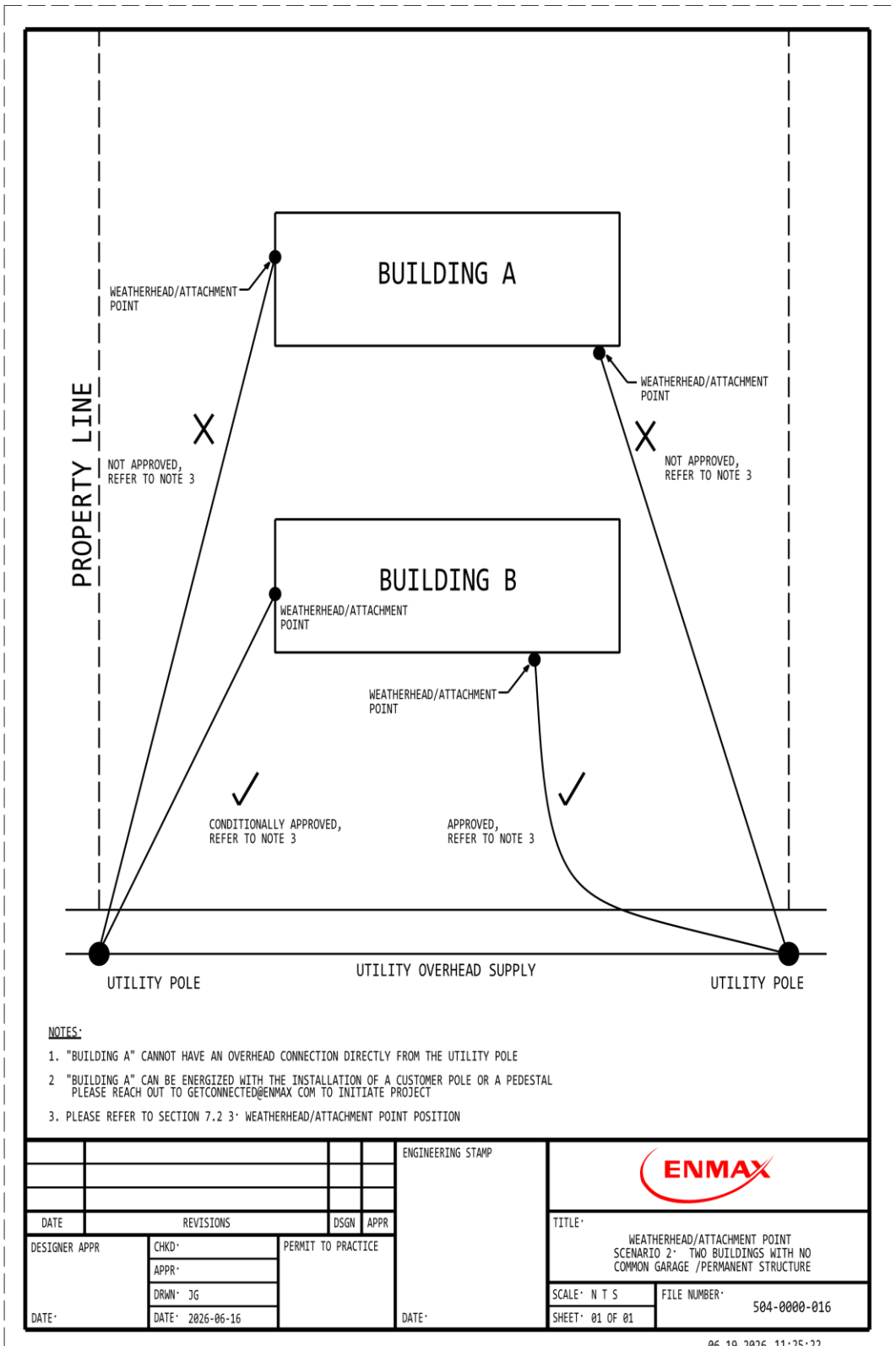


NOTE:
 1. PLEASE REFER TO SECTION 7.2.3 WEATHERHEAD/ATTACHMENT POINT POSITION

				ENGINEERING STAMP			
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	APPR					N T S	504-0000-015
	DRWN					SHEET	
DATE	DATE					01 OF 01	
	2026-06-16						

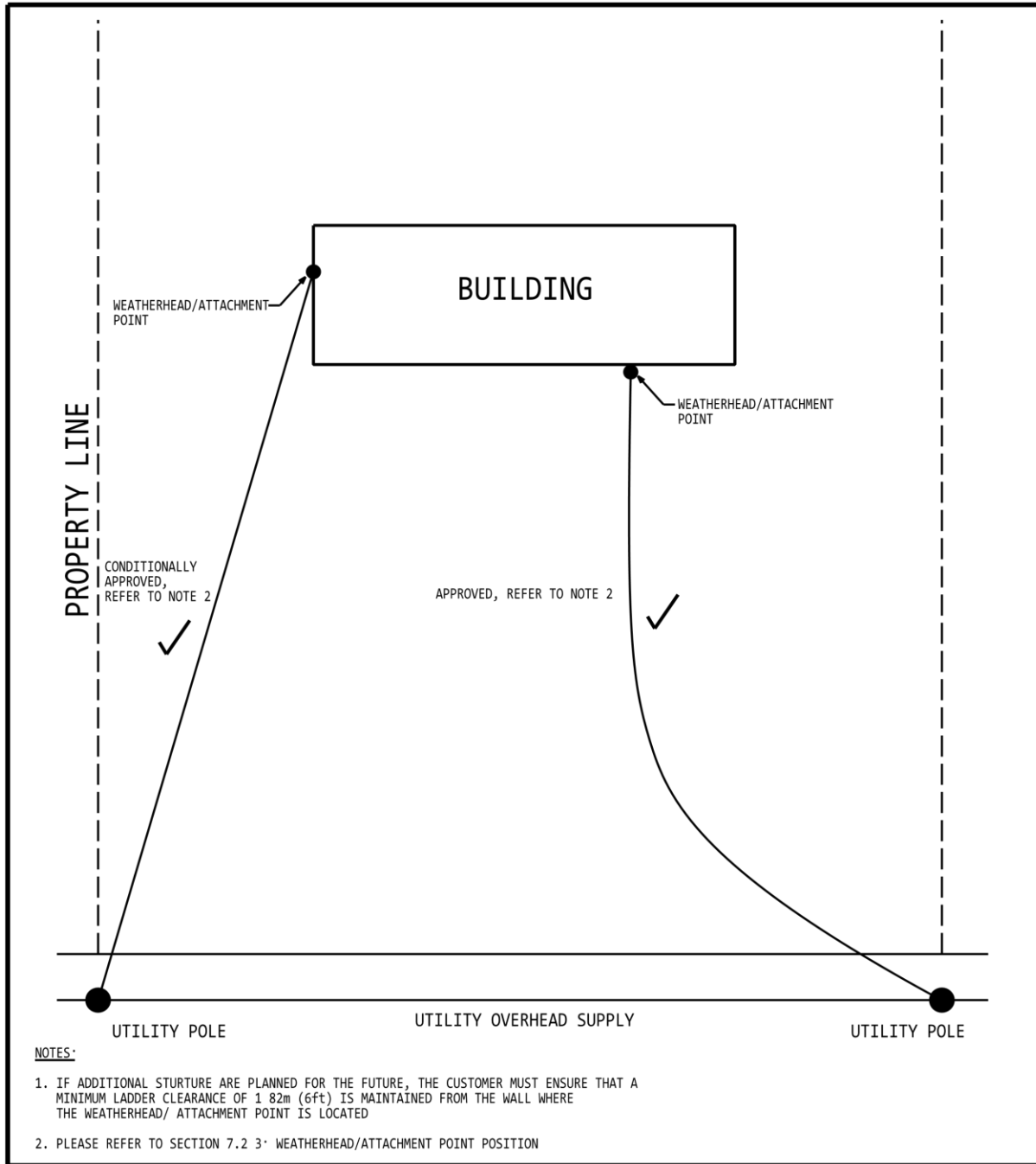
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8.3.16 Weatherhead/Attachment Point Scenario 2: Two Buildings with No Common Garage / Permanent Structure



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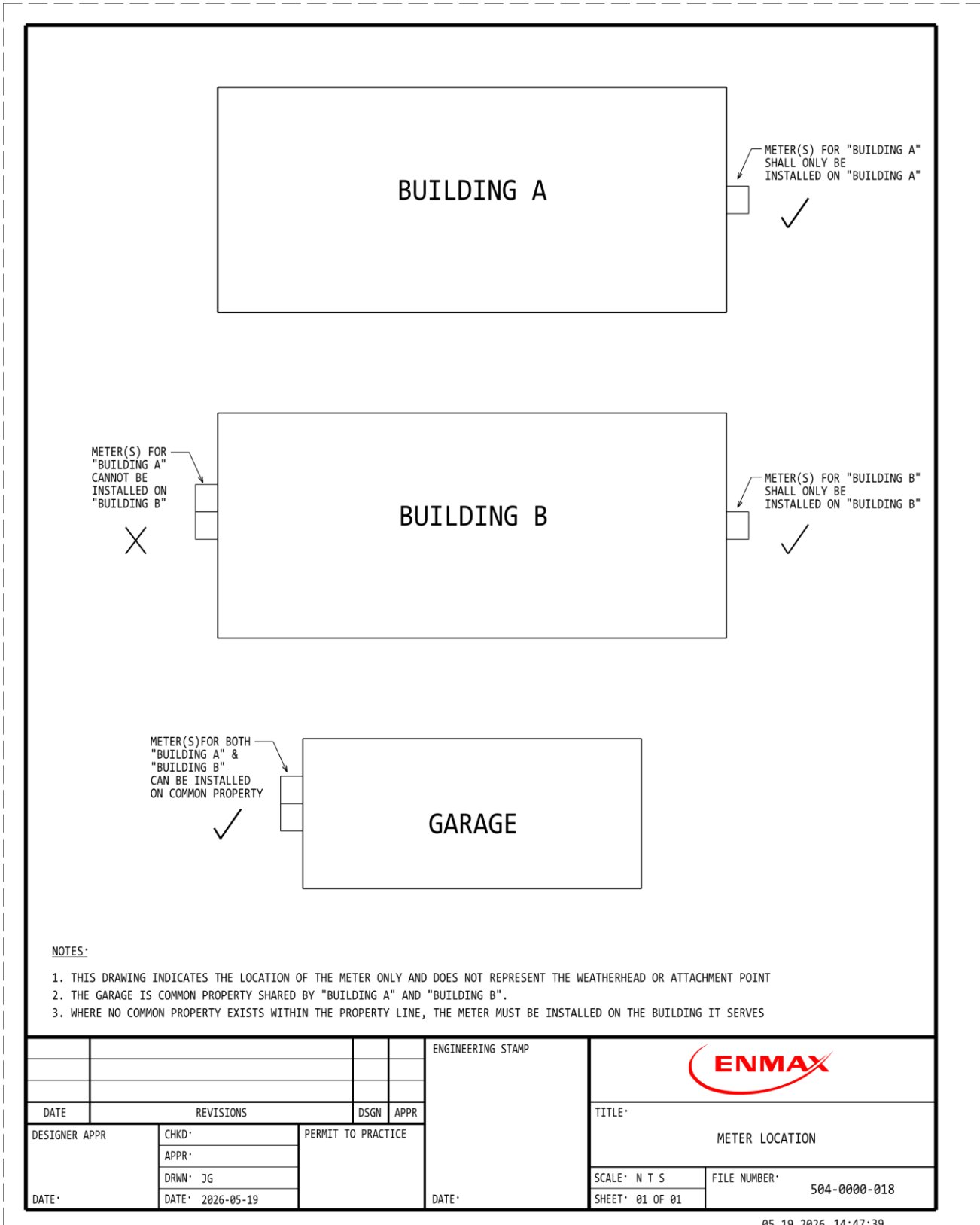
8.3.17 Weatherhead/Attachment Point Scenario 3: Single Buildings without a Garage



				ENGINEERING STAMP			
DATE	REVISIONS		DSGN	APPR	TITLE		
DESIGNER APPR	CHKD	PERMIT TO PRACTICE		WEATHERHEAD/ATTACHMENT POINT SCENARIO 3 - SINGLE BUILDING WITHOUT A GARAGE			
	APPR			SCALE	FILE NUMBER		
	DRWN			N T S	504-0000-017		
DATE	DATE	DATE		SHEET	01 OF 01		
	2026-06-16						

06 19 2026 11:03:48

8.3.18 Meter Location



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